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TECHNICAL REPORT

AUTOMATED DATA BASE IMPLEMENTATION REQUIREMENTS FOR THE AVIONICS PLANNING BASELINE – ARMY

July 1983

Prepared for
ARMY AVIONICS RESEARCH AND DEVELOPMENT ACTIVITY
FORT MONMOUTH, NEW JERSEY 07703
under Contract DAAB07-79-A-6606-BG16

ARINC RESEARCH CORPORATION

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This technical report addresses the requirements for implementing an automated version of the Army Avionics data base (APB-A) compatible with existing Air Force and Navy data base architectures and capable of mechanizing the production of the APB-A.

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by

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ABSTRACT

The U.S. Army Avionics Research and Development Activity (AVRADA) intends to establish the use of the Avionics Planning Baseline - Army (APB-A) document as an important facet of the formal avionics planning process. The APB-A was designed to maintain maximum compatibility in both form and content with similar avionics planning documents published by the Air Force and the Navy. This overall compatibility should facilitate the exchange of information among the three services for the identification of avionics standardization opportunities.

The first edition of the APB-A was the product of the collection and manual assembly of avionics planning data for current and future planned Army aircraft into a report format similar to that of the Air Force Avionics Planning Baseline (AF APB) and the Navy Avionics Planning Baseline (NAPB).

This technical report addresses the requirements for implementing an automated version of the Army avionics data base compatible with existing Air Force and Navy data base architectures and capable of mechanizing the production of the APB-A. The complete automated system will be documented in a future report.

SUMMARY

This report examines the aspects of computer hardware, data base architecture, data base management system (DBMS) methodology, and application programming that affect the development and installation of a computerized version of the Avionics Planning Baseline - Army (APB-A). It defines procedures, implementation requirements, and other considerations in view of previously defined APB-A document and system data requirements.

The initial automation of the Army avionics data base developed for the APB-A will be performed on a Digital Equipment Corporation (DEC) PDP-11/60 computer located at Wright-Patterson Air Force Base in Dayton, Ohio. The Army system will be based on the Air Force Avionics Data Utilization System (ADUS), which uses a commercial DBMS, SEED,* to store and maintain its data base, and Air Force-developed application software to generate the Air Force Avionics Planning Baseline (AF APB) on a line printer. The Army's contractor, ARINC Research Corporation, will modify the Air Force data base schema to fit Army requirements established for the APB-A, load the data base, and modify the ADUS application software to produce the APB-A. In the future, the Army plans to transfer its avionics planning information system to a VAX-11/780 at Fort Monmouth, New Jersey. The current unavailability of the SEED DBMS on the VAX necessitates the use of the PDP-11/60 for this effort.

The primary limitation imposed by the PDP-11/60 is the amount of virtual address space available for the use of a task or executable program. Tasks that exceed 32K words must be overlaid or split into separate parts that can execute concurrently and communicate through a portion of shared memory. Such memory limitations complicate the development of software on the PDP-11/60. They will disappear when the system is rehosted on the VAX-11/780.

*SEED is the proprietary DBMS of SEED Software, a division of United Telcom Computer Group.

A significant feature of the PDP-11/60 is its operating system, RSX-11M. This particular configuration of RSX-11M provides multiuser protection, requiring a user to log on the system by supplying a user identification code (UIC) and a password. RSX-11M does not allow batch processing, as the VAX/VMS operating system does. However, all files on disk and magnetic tape volumes created under RSX-11M are transportable to VAX/VMS. Thus, all SEED data base files should be transportable between the PDP-11/60 and the VAX-11/780.

The Army data base will be loaded through the facilities of the SEED utility package, SPROUT. No force structure data beyond fiscal year 1983 will be loaded at that time, because the data are classified as confidential and all data will be processed across telephone lines.

The ADUS computer programs that produce the AF APB will be modified to account for the changes to the Air Force schema and to produce the variations in format and content established in the manual version of the APB-A. These variations include the addition of equipment terminal logistics dates, footnotes, and separate installation and funding schedules for aircraft modification programs. It is recommended that the formats of several AF APB appendixes be adapted with some minor modification and used to replace Section III, Avionics Equipment Installations, in the manually produced APB-A.

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CHAPTER ONE

INTRODUCTION

1.1 PURPOSE

The purpose of this report is to address the issues pertaining to the initial implementation of the Avionics Planning Baseline - Army (APB-A) data base on a Digital Equipment Corporation (DEC) PDP-11/60 computer located at Wright-Patterson Air Force Base (WPAFB) in Dayton, Ohio. The implementation encompasses design and loading of the data base as well as modification of existing application software to generate a hard-copy version of the APB-A.

The first edition of the APB-A was the product of the collection and manual assembly of avionics planning data for current and future planned U.S. Army aircraft into a report format similar to that of the Air Force Avionics Planning Baseline (AF APB) and the Navy Avionics Planning Baseline (NAPB). The document was developed by ARINC Research Corporation for the Avionics Systems Integration Division (ASID) of the U.S. Army Avionics Research and Development Activity (AVRADA). It will be introduced by AVRADA as an important facet of the formal avionics planning process for the Army.

An additional objective of AVRADA is to implement an automated APB-A data base compatible with existing Air Force and Navy data base architectures and capable of mechanizing the production of the APB-A. This report covers the identification of the hardware and software requirements for the computerized APB-A data base. A future report will describe the features and use of the computerized system.

1.2 BACKGROUND

The Deputy for Avionics Control in the Aeronautical Systems Division (ASD/AX) currently operates a computerized data base of avionics planning information for the U.S. Air Force. The Avionics Data Utilization System (ADUS) uses a commercial data base management system (DBMS), SEED,* to structure and maintain its data base. The ADUS also includes application software that generates the AF APB on a line printer. The Air Force

*SEED is the proprietary DBMS of SEED Software, a division of United Telecom Computer Group.

avionics data base, the application software, and the SEED software all reside on the PDP-11/60 system that will be used for the initial implementation of the Army data base. The Deputy for Avionics Control has agreed to provide the Army and its contractor, ARINC Research Corporation, with ADUS documentation, computer program source code, and adequate computer access time with which to establish an Army avionics planning information system similar to and compatible with the Air Force system.

Currently, the Air Force data base and software are being transferred to the larger, more powerful DEC VAX-11/780 computer. The performance features and essentially unlimited program address space of the VAX will permit greater enhancement capability for the ADUS.

The Navy is currently employing a VAX-11/780 in the development of its own automated NAPB data base. This effort is being performed at the Naval Avionics Center (NAC) in Indianapolis, Indiana. The Navy data base is also patterned after the AF APB data base architecture and content. Thus, a high degree of structural similarity exists among the data bases of all three services.

From the beginning of its program to develop an avionics planning document equivalent to those of the Air Force and the Navy, the Army has specified the need to maintain maximum compatibility with the content and structure of the Air Force and Navy data bases. This guideline is designed to facilitate the exchange of information between the three services for the identification of avionics standardization opportunities. For the initial installation of its automated avionics planning system, the Army has elected to employ the Air Force ADUS data base architecture and application software, modified to meet unique Army requirements, in order to make efficient and cost-effective use of the developmental work that has already been performed.

1.3 REPORT ORGANIZATION

This report discusses the three main factors that will affect the development of the computerized Army avionics planning information system: computer hardware, data base design, and application software modifications.

Chapter Two explains the salient features of the PDP-11/60 that affect the Army's use of the system for its initial data base implementation. These include virtual address space, the operating system, and available disk drive. Comparisons are made with the VAX-11/780 computer's capabilities.

Chapter Three provides an overview of the Army data base structure and outlines the steps required for data base development. Transportability and data base security are both addressed.

Chapter Four describes the existing ADUS application software and the changes that must be made to produce the APB-A. It also discusses considerations for task building the program that will produce the main APB-A report.

Chapter Five summarizes the recommendations for data base automation based on results and analysis presented in the preceding chapters.

Five appendixes supply additional information. Appendix A contains a description of schema items, records, and sets. Appendix B presents a data base structure diagram, a list of changes made to the Air Force ADUS schema, and the Army schema Data Definition Language (DDL). Appendix C presents detailed data base loading procedures and input data coding forms, Appendix D presents APB-A output formats, and Appendix E is a list of references used for this report.

CHAPTER TWO

DATA PROCESSING FACILITIES

2.1 PROCESSOR

Because of the current unavailability of the SEED DBMS on suitable AVRADA computer facilities, the PDP-11/60 at WPAFB was selected to host the initial version of the automated Army avionics data base. AVRADA has purchased SEED for installation on a VAX-11/780 computer located at Fort Monmouth, New Jersey. Installation of the DBMS is expected to occur sometime after 1 May 1983. The automated Army system will be relocated from the PDP-11/60 to the VAX-11/780 in early-to-mid 1984. Plans then are to allow direct data base access to other remote Army users such as Aviation Systems Command (AVSCOM) in St. Louis, Department of the Army (DA), and Training and Doctrine Command (TRADOC), and to Air Force and Navy users at WPAFB and NAC, respectively.

The significant characteristics of the PDP-11/60 are (1) 256K bytes of MOS main (physical) memory, (2) 16-bit addressability, and (3) memory management hardware and software. The 16-bit addressability implies a virtual address space of 32K words, i.e., 2^{16} virtual memory locations are addressable by a 16-bit word (2^{16} = 64K bytes = 32K words). Executable modules or tasks that exceed 32K words can be structured into segments, where one segment, called the root, remains in memory at all times and the remaining segments, called overlays, can be alternately placed into memory, such that the combined memory requirements of the root and the largest overlay segment do not exceed 32K words. The memory management unit provides the automatic placement of a task image into a sufficient partition of physical memory at run time.

An alternative approach to the use of overlays is to implement dual tasking wherein the program is split into two separate parts. Both parts are initiated as separate tasks and share some common portion of memory for communications, data transfer, and control.

When the Army avionics data base is transferred to a VAX-11/780 as planned, tasks much larger than 32K words will be able to execute without user-designed overlays or dual tasking. The VAX virtual memory operating system will perform this function automatically. The 32-bit addressability of the VAX implies a virtual address space of 2^{31} words (2^{32} bytes = 2^{31} words) of which one-half is allocated for use by a task image and the environment in which it executes.

2.2 OPERATING SYSTEM

The operating system residing on the PDP-11/60 is RSX-11M Version 3.2, a disk-based operating system that supports multiprogramming and interactive programming. Unlike the VAX-11/780 VMS operating system, RSX-11M does not support batch processing. When jobs are initiated from a remote terminal, the terminal must maintain communication with the PDP-11/60 processor. For lengthy jobs, this requirement will escalate telephone line charges.

This particular RSX-11M operating system configuration provides multiuser protection, requiring a user to log on the system by supplying a user identification code (UIC) and a password.

The Monitor Console Routine (MCR) provides the interface between the user and RSX-11M. MCR allows the user to run tasks, control peripheral devices, and obtain system and task information. For program development under RSX-11M, the programmer will require the services of the text editor (EDI), the FORTRAN compiler (F77), and the Task Builder (TKB).

2.3 DISK STORAGE

For data base implementation, the Army has the use of a mountable RK07 disk provided by the Air Force. The disk has a storage capacity of 28 megabytes and, because of the availability of only one RK07 disk drive for special users, can only be mounted when the Air Force ADUS-dedicated RK07 disk is removed. Therefore, Army access time must be arranged with the ADUS data base administrator.

When an Army user logs on the system, a default User File Directory (UFD) with the same number as the assigned UIC is made available to store and protect all user-owned files. The ADUS data base administrator has placed all the SEED software (Version B11) and FORTRAN source code required for data base loading and application software modification within the Army's UFD. An additional RK07 disk, acting as the system disk for the Army's UIC, contains the necessary RSX-11M system software such as MCR, TKB, and the Peripheral Interchange Processor.

All files residing on disk and magnetic tape volumes created under RSX-11M are formatted and handled through FILES-11, an RSX-11M system task. Volumes created under FILES-11 are transportable between the RSX-11M and VAX/VMS operating systems.

When the computerized APB-A implementation is completed, it is estimated that approximately 10,000 blocks (512 bytes/block) of the storage space on the Army RK07 disk will be filled with the data files and software used, created, or modified during system development. The estimated requirements per component are:

- SEED executable modules - 1,900 blocks
- SEED APB-A data base files - 4,000 blocks

- Application program FORTRAN source code - 400 blocks
- Application program object code - 260 blocks
- Application program executable modules - 540 blocks
- Application program output files - 3,000 blocks
- Miscellaneous - 300 blocks

10,400 blocks
= 5.32 megabytes

These estimates are based on existing Air Force files and Air Force experience.

The current VAX-11/780 configuration at Fort Monmouth includes only one RM05 disk drive with a storage capacity of 256 megabytes. The VAX version of the SEED DBMS software will reside on this disk so as to be available to other system users. Because this VAX facility is not controlled by AVRADA, APB-A system developers will be competing with these other users for disk space. With the growth of the APB-A data base and the writing of additional application programs to interface with it, APB-A-related storage space requirements will undoubtedly increase as AF APB requirements have done. Therefore, it is recommended that AVRADA secure its own disk drive. This would assure sufficient room for expansion as well as the constant availability of the disk to those working with and developing the APB-A.

2.4 TERMINALS

Many terminals are suitable for use with the automated APB-A data base on the PDP-11/60. However, ARINC Research recommends that the Army VAX-11/780 facility include either a DEC VT-125 or a Zenith Z-19 CRT terminal. These terminals are recommended because they can support the SEED screen-oriented applications development package, VISTA, and the graphics utility package, RAINBOW. Neither VISTA nor RAINBOW are available for the PDP-11/60.

2.5 REMOTE COMMUNICATIONS

Off-site users possessing a valid UIC and password may dial into the PDP-11/60 computer if they have access to the proper modem or acoustic coupler and a terminal. A RACAL-VADIC triple modem with automatic answering capability is connected to the PDP-11/60 and allows remote communications under either Bell 103 or Bell 212 protocol. Bell 103 protocol consists of full-duplex asynchronous operation at 0 to 300 baud. The Bell

212 protocol used is full-duplex asynchronous operation at 1200 baud. The modem or acoustic coupler and terminal at the remote site must be compatible with one or both of these protocols.

CHAPTER THREE

APB-A DATA BASE

3.1 OVERVIEW

The APB-A data base is composed of the following six sections or areas:

- Modification
- Development Program
- Equipment
- Aircraft
- Need Statement
- Avionics

Each area represents a physical subdivision of the data base and is handled as a separate file by the SEED DBMS. The data in each area are stored in records that are made up of data items. The records in an area are logically related through sets. Sets may also be used to define a logical relationship between records in different areas. A set relationship consists of one owner record type and one member record type.

The Modification Area contains information concerning ASID involvement in each Product Improvement Proposal (PIP). The Development Program Area contains data for Army avionics research and development programs. Currently, it is not planned for data to be loaded into this section of the APB-A data base. Those Army avionics programs in advanced or engineering development that are funded, referenced by a requirements document (Letter of Agreement [LOA], Required Operational Capability [ROC], Material Need [MN], or Letter Requirement [LR]), and designated for one or more specific aircraft are included in the preliminary version of the APB-A as other planned avionics programs. In future updates, however, these and other less defined programs could be placed in the Development Program Area.

The records of the Equipment Area store data peculiar to the various avionics equipments that appear in the APB-A. Equipment function, nomenclature, description, and point-of-contact information are among the data items in this section. The Aircraft Area describes the Army aircraft tracked in the APB-A. Records will be present for aircraft at the series level, e.g., OV-1C, or, if necessary, the block level, e.g., AH-1S#1. This area also includes force structure information.

The Need Statement Area contains the identification numbers and titles of documents that specify a required capability for certain Army aircraft. The Avionics Area provides the means of linking the necessary modification program (PIP), equipment, and requirements document information to aircraft. This section also provides PIP points of contact, installation schedules, and years of funding.

Appendix A contains detailed descriptions of the items, records, and sets in the six areas.

Figure 3-1 shows the structure of the APB-A data base. Areas are partitioned by dashes; records are enclosed in rectangular boxes; sets are illustrated by arrows starting from the owner record type and ending at the member record type. Generic record names are listed within the rectangular boxes. Only one rectangular box appears without a generic name. This record, EQLR, contains no data items. It serves as a logical connector or link record for a special type of relationship known as a bill-of-materials structure, i.e., a many-to-many relationship among records of the same type. Beneath the generic record name, the SEED name is listed. SEED names are those used to specify the record, item, or set in the data base schema. SEED set names are listed next to their corresponding arrows.

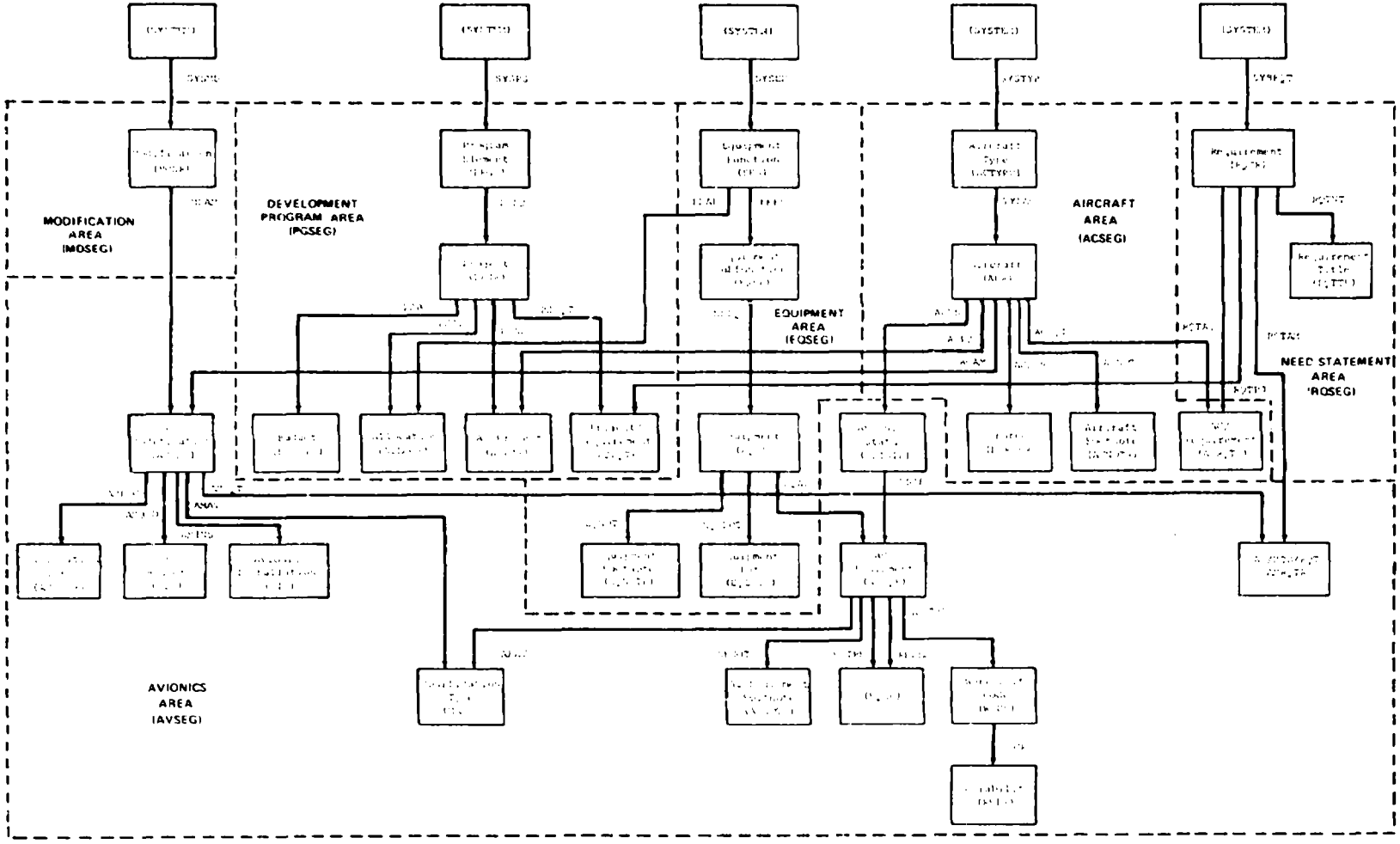
3.2 DATA BASE DEFINITION

The APB-A data base areas, records, items, and sets described in Appendix A must be declared and assigned the proper attributes in the data base schema. The schema prepared for the Army avionics data base appears in Appendix B.

While the schema provides the definition of the overall structure of the data base, a subschema is necessary to establish access to the data. A subschema may permit access to all or part of the data base. FORTRAN and COBOL application programs and all available SEED programs (HARVEST, BLOOM, VISTA, GARDEN, and SPROUT) require a subschema that provides the interface to the data base. The interface is called the User Working Area (UWA) and is produced by the subschema processor when it compiles the subschema definition language.

3.3 DATA BASE LOADING

The Army data base can be loaded interactively by using the Data Manipulation Language (DML) of GARDEN or by means of an interactive job that invokes the Transaction Input Processor (TRIN) of SPROUT. TRIN will be



Adapted from Avionics Data Utilization System Data Dictionary (Reference 3).

FIGURE 3-1

APB-A DATA BASE STRU

used for the initial loading of data. The input data forms found in Appendix C will be completed and used to create four separate transaction files. Data in the transaction files will be entered to ensure that proper set linkages are established when the data base is loaded. This process is further described in Appendix C. Further information on the use of TRIN may be found in the SPROUT User Manual (Reference 1).

3.4 TRANSPORTABILITY

As stated in Section 2.3, files on disk and magnetic tape media created under the RSX-11M operating system are transportable to the VAX/VMS operating system. Conversations with various SEED software experts have confirmed that SEED data base files are transportable from the PDP-11/60 to the VAX-11/780. These files can be copied to a magnetic tape and then dumped to a hard disk in the VAX facility. Only if schema changes are made will the unloading and reloading of the Army data base be necessary. This is true even if the files are not transported.

3.5 DATA BASE SECURITY

When the Army avionics data base becomes available for access by many users, the Army data base administrator must face the problem of protecting certain areas of the data base from examination and modification by unauthorized personnel. To this end, subschemas can be designed to include only those items, records, and sets which do not contain or relate to the sensitive information. Subschemas can be dedicated to the needs of a particular user. Those users to whom data base access is permitted for "read only" purposes would have the use of the SEED query language, HARVEST, the report writer, BLOOM, and the associated subschemas and subschema passwords. Those users would require no other SEED DBMS software facilities.

Several system users may, however, be using the SEED DBMS to develop other applications. Those not responsible for Army avionics data base maintenance should not have access to the schema password or to the subschema definition language that contains this password. Otherwise, they would be able to write their own subschemas and access the part of the data base that the data base administrator wishes to protect.

Because force structure data beyond fiscal year 1983 is classified as confidential, they will not be loaded for the initial Army data base implementation. ARINC Research will perform the data loading from a remote terminal, and classified data may not be transmitted over telephone lines.

CHAPTER FOUR

APPLICATION SOFTWARE

4.1 CONTENT

The ADUS application computer programs provided by the Air Force are written in DEC FORTRAN 77 and produce the main report and Appendixes D through H of the AF APB. Appendixes A, B, and C are text files that are entered by using the RSX-11M text editor and then are output on a line printer. These appendixes contain a list of references, document abbreviations, and Air Force avionics points of contact, respectively. Appendixes D and E provide avionics equipment nomenclatures sorted by functional area and in alphanumeric order. Appendix E also displays aircraft installations, equipment status, and equipment point-of-contact information. Appendix F shows avionics aircraft installations by equipment functional area. Appendixes G and H contain avionics modification programs and research and development programs, respectively.

The main report and each of the appendixes are generated separately. An appendix is produced by executing a specific command file for that appendix. The command file, in turn, runs a FORTRAN program that retrieves the necessary data from the data base, invokes a sort utility to sort the data, and runs yet another FORTRAN program to print the appendix.

4.2 MEMORY REQUIREMENTS

As mentioned in Section 2.1, the size of an executable module or task on the PDP-11/60 is limited to 32K words. Overlays can be used to segment a larger task into modules that are each less than 32K words. In this mode the FORTRAN subroutines are linked during task building with the DML library routines they call. These DML object files occupy part of the allotted 32K words of virtual address space and thus place further restrictions on the size of the FORTRAN application program.

To preserve the storage space normally required by the DML routines, the Air Force APB program runs in a dual-task environment. In a dual-task environment, two tasks run concurrently and communicate with each other through a region of shared memory. This procedure requires a special DML module, provided by SEED software, that permits each DML routine to be executed as a separate task. Further information about this process can

be found in Section 6 of the SEED Operating Guide PDP-11/RSX-11M (Reference 2). According to this guide, the DML module and the shared-memory region require approximately 4.6K words of virtual address space, leaving roughly 27.4K words for the application program. The current AF APB program can be run in this space without using overlays. Should modifications to the program cause the task to exceed 27.4K words, overlays can be used within the context of the dual-task environment.

4.3 REQUIRED MODIFICATIONS

Once the Army avionics planning information system is relocated to the VAX-11/780 computer, all necessary software modifications can be made without regard for memory limitations. However, both AVRADA ASID personnel and ARINC Research analysts have agreed that the current Air Force ADUS schema is inadequate for representing APB-A data base requirements. Using the existing ADUS schema, the Army would obtain a data base structured to comply with Air Force requirements. The Army data base would be lacking the data needed to represent the unique features of the APB-A such as terminal logistics dates, footnotes, and separate PIP installation and funding schedules. An AF APB replica would be the only possible resulting document. If the APB-A format were to be duplicated at a later date, the schema would have to be modified and the data base unloaded and reloaded.

ARINC Research plans to load the APB-A data base by using the modified schema and the SPROUT facilities. Once this step has been completed, ARINC Research will proceed to modify the ADUS application software. Table 4-1 summarizes the program changes necessary to produce the main APB report in the format designed for the Army. The first three changes will be performed while the APB-A automated system resides on the PDP-11/60. The remaining changes will be accomplished after the system has been rehosted on the VAX-11/780. At this time, it is recommended that the formats of the AF APB Appendixes D through G be adapted, with minor changes, for the APB-A. Section III, Avionics Equipment Installations, in the manually produced version of the APB-A combined the features of Appendixes D, E, F, and G of the AF APB to display the contents of Section II, Aircraft Avionics Configurations, by equipment instead of by aircraft. This was done to conserve the time and resources that would be consumed in reproducing all four appendixes separately. For the automated version, it is simpler and equally effective to make use of the existing Air Force formats in lieu of Section III.

Appendix H of the AF APB, consisting of a list of avionics research and development programs, will not be modified or adapted at this time because of the absence of such data in the preliminary APB-A.

Appendix D to this report contains the planned formats for the APB-A main report and its appendixes. It also illustrates the data items and record types that appear in the fields on each report page.

TABLE 4-1

PLANNED MODIFICATIONS TO ADUS APPLICATION SOFTWARE FOR APB-A MAIN REPORT

Description of Change	Affected Sections						
	Existing Avionics	Ongoing Avionics Modifications	Other Planned Avionics	Modification Planning Funds	Force Structure	Requirements Documents	Footnotes
Confirm that all program variable names are consistent with those found in new User Working Area.	X	X	X	X	X	X	X
Show modification schedule based on time frame for installations only.	X	X	X				
Change various column headings to match those in APB-A.	X	X	X	X	X	X	X
Display funding schedule based on years of funding for modification and showing no dollar amounts.				X			
Change number of years in report from 15 to 10.	X	X	X	X	X		
Add terminal logistics dates.	X						
If "Terminal Logistics Date," "Total Aircraft Equipped," or "Number per Aircraft" are unknown, leave respective column entries blank.	X	X	X				
Add column for footnotes.	X	X	X				
Create footnotes report.							X
Add (M), (R), or (A) in equipment nomenclature column to signify whether change is modification, replacement, or addition, respectively.		X	X				
Print an asterisk immediately after schedule start or finish dates that are estimated or uncertain.	X	X	X	X			

CHAPTER FIVE

RECOMMENDATIONS

For the initial APB-A data base implementation on the PDP-11/60 computer at WPAFB, ARINC Research Corporation recommends that the basic formats of AF APB Appendixes D, E, F, and G be adapted to replace Section III, Avionics Equipment Installations, of the manually prepared version of the APB-A. The use of the AF APB appendixes requires relatively minor software changes as opposed to those required in creating a report in the format of Section III.

The following recommendations are offered for the future rehosting of the automated APB-A system on the VAX-11/780 computer at Fort Monmouth, New Jersey:

- The VAX-11/780 facility should include either a DEC VT-125 or a Zenith Z-19 CRT terminal, because of their ability to support both the SEED screen-oriented application development package, VISTA, and the graphics utility package, RAINBOW.

- The direct transportability of SEED data base files from the PDP-11/60 to the VAX should be confirmed. A magnetic tape containing the files can be created, with the cooperation of the Air Force computer facility personnel at WPAFB, and copied to a disk on a VAX-dedicated disk drive.

- To prevent the periodic dismounting of an Army APB-A dedicated disk from a shared disk drive, which is currently the case on the PDP-11/60 system at WPAFB, and to avoid storage space restrictions resulting from competition among the users of the VAX-11/780 for file space on the system's single hard disk, it is recommended that AVRADA obtain its own disk drive for the residence of APB-A data files and application programs.

APPENDIX A

DESCRIPTION OF SCHEMA ITEMS, RECORDS, AND SETS

The following tables present a list of the items, records, and sets found in each section or area of the APB-A data base. The table formats are based on those found in the Avionics Data Utilization System Data Dictionary (Reference 3). To maintain compatibility and facilitate cross-referencing between Army and Air Force documentation, the tables retain the names and descriptions of those ADUS elements which required no modification for APB-A purposes. Items and records for which Army avionics data have not yet been assembled are also retained for future use.

For each area, there are two tables. The first table displays records and the items comprised. Each record and item appears with its descriptive generic name that signifies the type of data it contains and the SEED name that defines the entity in the schema. The item FORTRAN format specifier is shown, along with a brief description of the item.

The second table for each area contains information about the sets whose owner records are stored in that area. The member records of a set may or may not be in the same area. Each set is shown with its SEED name, owner record type, member record type, and a short description of the meaning of a set occurrence, i.e., the relationship between an owner record occurrence and its member record occurrences.

TABLE A-1

MODIFICATION AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Modification MODR	PIP Number	MOD	A8	A portion of the formally assigned nine-digit Product Improvement Proposal (PIP) number in the format YY-XXXX, where YY = fiscal year in which initial funds are (were) intended to be spent for the PIP XXXX = sequence number assigned by the sponsoring subcommand Changes not specified by a formal PIP will be assigned a pseudo-PIP number.
	ASID Involvement	MODIN	A2	Extent of Avionics Systems Integration Division (ASID) involvement in the PIP, where D = Deeply involved M = Moderately involved F = Filed C = Closed
	ASID POC	MODPO	A16	ASID point of contact for the PIP

TABLE A-2

MODIFICATION AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
SYSMD	System SYSTEM	Modification MODR	These modification records can be sorted by PIP number.
MDAM	Modification MODR	Aircraft/Modification Link ACMDR	This PIP affects these aircraft.

TABLE A-3

DEVELOPMENT PROGRAM AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Program Element PRGR	Program Element Number	PRG	A6	Alphanumeric identification of a specific program element (e.g., 63221)
	Program Element Title	PRGN	A26	Phrase describing the program element
Project PRJR	Project Number	PRJ	A4	Breakdown of program element into a specific effort or technical area
	Project Title	PRJN	A26	Phrase describing the project
	Mission Area	PRJMIS	A20	Army mission area to which the program belongs or can be related
	ASID Involvement	PRJIN	A2	Extent of ASID involvement in the project, where D = Deeply involved M = Moderately involved F = Filed C = Closed

(continued)

TABLE A-3 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Project PRJR (continued)	ASID POC	PRJPO	A16	ASID point of contact for the project
	Proportion Avionics	PROAV	F4.2	Proportion of funding for this program (e.g., 0.5 for one-half) used to develop avionics
Program Budget BUDFYR	Source		A3	Source of budget data -- e.g., Program Objectives Memorandum (POM)
	Level	SORCE	A3	Funding level in data from budget source, such as: MIN - Minimum BAS - Basic Program ENH - Enhanced DEC - Decremented
	Years Supplied		A2	Last two digits of calendar year of publication of budget source
	First Year	YR1	I2	Last two digits of first fiscal year of budget data

(continued)

TABLE A-3 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Program Budget BUDFYR (continued)	Budget in I^{th} Fiscal Year	BUDYR1 . . . BUDYR8	8F6.1	Budget in millions of then-year dollars for the I^{th} fiscal year
Allocation Link ALLOCR	Fraction Allocation	FCTALL	F4.2	Fraction (e.g., 0.33) of funding for this development program that is devoted to an equipment function (see set EFAL in Table A-6)
Aircraft/ Project Link ACPJR	Aircraft T/M/S (/B)	ACPJL	A12	Aircraft type/model/series (/block number) (e.g., OV-1B, AH-1S#3)
	Program Element Number		A6	Identification of a specific program element
	Project Number		A4	Breakdown of program element into specific effort or technical area

(continued)

TABLE A-3 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Project/ Requirements Link PJRQTR	Program Element Number	PJRQTL	A6	Identification of a specific program element
	Project Number		A4	Breakdown of program element into specific effort or technical area
	Requirements Document Number		A16	Reference number of ROC, LR, MN, or LOA need statement

TABLE A-4

DEVELOPMENT PROGRAM AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
SYSPG	System SYSTEM	Program Element PRGR	These program element records can be sorted by program element number.
PGPJ	Program Element PRGR	Project PRJR	This program element is composed of these projects.
PJBD	Project PRJR	Program Budget BUDFYR	These budget records supply funding information for this project.
PJAL	Project PRJR	Allocation Link ALLOCR	These allocation records divide the project funding by equipment function.
PJAC	Project PRJR	Aircraft/Project Link ACPJR	This project in this development program will develop this capability for the linked aircraft.
PJRQT	Project PRJR	Project/Requirements Link PJRQTR	This project in this development program will develop a capability to assist in satisfying the needs specified by the requirements documents indicated by these link records.

TABLE A-5

EQUIPMENT AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Equipment Function EFR	Function Code	EF	A4	One of the following codes, representing the primary functional capability of an equipment: APS - Avionics Processing System ASE - Aircraft Survivability Equipment C - Communications CMS - Cockpit Management System EL - Power Distribution FL - Flight Controls ID - Identification IN - Instrumentation M - Mission Equipment MIS - Miscellaneous N - Navigation NWD - Navigation/Weapons Delivery R - Reconnaissance WD - Weapons Delivery
	Function Description	EFT	A32	Long-form description of equipment function code indicated above

(continued)

TABLE A-5 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Equipment Function EFR (continued)	Equipment Group	EG	A4	Equipment grouping as follows: CM - Common CR - Core MS - Mission
Equipment Subfunction ESFR	Equipment Subfunction Code	ESF	A6	Abbreviation for equipment subfunction; currently, the APB-A uses no subfunctions
	Equipment Subfunction Description	ESFT	A36	Long-form identification of equipment subfunction indicated above
Equipment EQR	Equipment Nomenclature	EQ	A12	AN/nomenclature, pseudonomenclature, or commercial designation identifying the equipment
	Equipment Type	EQDES	A20	A generic description of the equipment (e.g., UHF Radio)

(continued)

TABLE A-5 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Equipment EQR (continued)	Standard Preferred Item	SPI	A4	Indicator for standard preferred item: SPI - Standard item (blank) - Not a standard item
	Average Unit Cost	AUC	I6	Average unit cost in thousands of dollars for all units bought to date
	Quantity	QTY	I8	Quantity of this equipment produced to date
	Year of Information	YR	I2	Last two digits of fiscal year applicable for the average cost and quantity data items
	First Unit Cost	FU	I6	Estimated cost in thousands of dollars of the first unit produced (for learning-curve computations)
	First Unit Cost Year	FUYR	I2	Last two digits of fiscal year applicable to first unit cost
	Equipment POC Organization	EQPOC	A20	Organization in DARCOM responsible for this equipment
	Equipment POC Phone Number	EPHONE	A8	Autovon phone number for the equipment point of contact

(continued)

TABLE A-5 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Equipment EQR (continued)	Equipment POC	EQNAM	A16	Name of point of contact in DARCOM for this equipment
	Terminal Logistics Date	EQTLD	I4	Year by which the logistics support of the equipment will no longer be feasible or cost-effective
	Spare	EQSP	A16	Space reserved for future use
Equipment Lot EQLOTR	Year	LOTYR	I2	Last two digits of the fiscal year in which the first units in this lot were accepted by the Army
	Lot Quantity	LOTQTY	I5	Total number of units produced in this lot
	Contractor	CONT	A16	Contractor supplying the equipment
	Competition	COMP	A4	Flag indicating whether the contract was a competitive award: CMP - Competitive Buy SS - Sole Source

(continued)

TABLE A-5 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Equipment Lot EQLOTR (continued)	GFE/CFE Indicator	GFECFE	A4	Flag indicating whether this equipment will be used as Government-furnished equipment in a larger system: GFE - Government-Furnished Equipment CFE - Contractor-Furnished Equipment (blank) - Neither
	Spare	EQLTSP	A10	Space reserved for future expansion
Equipment Footnote EQNOTR	Footnote	EQNOTE	A100	A comment or explanation that provides additional information peculiar to the equipment

TABLE A-6

EQUIPMENT AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
SYSEF	System SYSTEM	Equipment Function EFR	These equipment function records can be sorted by function code.
EFES	Equipment Function EFR	Equipment Subfunction ESFR	This equipment function is composed of these equipment subfunctions.
EFAL	Equipment Function EFR	Allocation Link ALLOCR	This equipment function has been allocated funding by the linked projects.
ESEQ	Equipment Subfunction ESFR	Equipment EQR	These equipments fall under this equipment subfunction.
EQAE	Equipment EQR	Aircraft/Equipment Link ACEQR	This equipment is or will be installed on these aircraft.

(continued)

TABLE A-6 (continued)

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
EQELOT	Equipment EQR	Equipment Lot EQLOTR	These equipment lots were historical buys of this equipment.
EQNOT	Equipment EQR	Equipment Footnote EQNOTR	These footnotes provide additional information about this equipment.

TABLE A-7

AIRCRAFT AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft Type ACTYPR	Aircraft Type	ACTYP	A24	APB-A aircraft type headings (F/W = fixed wing, R/W = rotary wing): F/W - Cargo/Transport F/W - Observation F/W - Reconnaissance F/W - Trainer F/W - Utility R/W - Attack R/W - Cargo/Transport R/W - Observation R/W - Special Electronic R/W - Trainer R/W - Utility
Aircraft ACR	Aircraft T/M/S (/B)	AC	A12	Aircraft type/model/series (/block number) (e.g., OV-1B, AH-1S#3)
	Aircraft Sort Key	ACSRT	I3	Indicates order of aircraft printouts within each aircraft type. Aircraft with smallest sort key is printed first.

(continued)

TABLE A-7 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft ACR (continued)	Mission 1	ACM1	A20	Up to three aircraft missions may be specified for each aircraft T/M/S
	Mission 2	ACM2	A20	
	Mission 3	ACM3	A20	
	System Manager	ACSYS	I3	Index into a table of system managers
Force Structure FORCER	Fiscal Year	FORCE	I2	Last two digits of fiscal year of force structure information
	Active Army Forces	FORACT	I4	The expected number of aircraft of this T/M/S designation in the active forces at the start of the indicated fiscal year
	Army Reserve Forces	FORRES	I4	The expected number of aircraft of this T/M/S designation in the reserve forces at the start of the indicated fiscal year
	Army National Guard	FORNG	I4	The expected number of aircraft of this T/M/S designation in the National Guard forces at the start of the indicated fiscal year

(continued)

TABLE A-7 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft/ Requirements Link ACRQTR	Aircraft T/M/S (/B)	ACRQTL	A12	Aircraft type/model/series (/block number) designation
	Requirements Document Number		A16	Reference number of ROC, LR, MN, or LOA need statement
Aircraft Footnote ACNOTR	Footnote	ACNOTE	A100	A comment or explanation that provides additional information peculiar to the aircraft

TABLE A-8

AIRCRAFT AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
SYSTYP	System SYSTEM	Aircraft Type ACTYPR	These aircraft type records can be sorted alphabetically by type.
TYPAC	Aircraft Type ACTYPR	Aircraft ACR	This aircraft type includes these aircraft T/M/S designations.
ACPJ	Aircraft ACR	Aircraft/Project Link ACPJR	The projects in these development programs are developing avionics for this aircraft.
ACAM	Aircraft ACR	Aircraft/Modification Link ACMDR	These PIPs will modify, replace, or add avionics to this aircraft.
ACVS	Aircraft ACR	Avionics Status VSTATR	This aircraft contains equipment with the function and status indicated by these avionics status records.
ACFOR	Aircraft ACR	Force Structure FORCER	The expected numbers of aircraft with this T/M/S designation are supplied for the fiscal years indicated by these force structure records.

(continued)

TABLE A-8 (continued)

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
ACRQT	Aircraft ACR	Aircraft/Requirements Link ACRQTR	These need statements indicated by these link records apply to this aircraft.
ACNOT	Aircraft ACR	Aircraft Footnote ACNOTR	These footnotes provide additional information about this aircraft.

TABLE A-9

NEED STATEMENT AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Requirements Document RQTR	Requirements Document Number	RQTN	A16	Reference number of ROC, LR, MN, or LOA need statement
Requirements Document Title RQTTR	Requirements Document Title	RQTT	A60	Phrase describing the need or requirement

TABLE A-10

NEED STATEMENT AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
SYSRQT	System SYSTEM	Requirements Document RQTR	These requirements document records can be sorted by requirements document number.
RQTNT	Requirements Document RQTR	Requirements Document Title RQTTR	This need statement is described by these title records.
RQTAC	Requirements Document RQTR	Aircraft/Requirements Link ACRQTR	This requirements document applies to the aircraft designations indicated by these link records.
RQTPJ	Requirements Document RQTR	Project/Requirements Link PJRQTR	This requirements document helps to establish the requirements for the projects and development programs indicated by these link records.
RQTAM	Requirements Document RQTR	Aircraft/ Modification/ Requirements Link AMRQTR	This requirements document helps to set the requirements for the PIPs indicated by these link records.

TABLE A-11

AVIONICS AREA RECORDS AND ITEMS

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Avionics Status VSTATR	Aircraft T/M/S (/B)		A12	Aircraft type/model/series (/block number) designation
	Equipment Function Code	VSTAT	A4	Abbreviation representing the primary functional capability of an equipment (see EFR in Table A-5 for complete list of codes)
	Avionics Status		A4	Status of equipment installation on this aircraft: EXT - Existing OGM - Ongoing Modification OPA - Other Planned Avionics OOP - Optional Other Planned Avionics
Aircraft/ Equipment Link ACEQR	Aircraft T/M/S (/B)	ACEQ	A12	Aircraft type/model/series (/block number) designation
	Equipment Nomenclature		A12	AN/nomenclature, pseudonomenclature, or commercial designation identifying the equipment
	Number Per Aircraft	VQ	I2	Quantity of this equipment to be installed in each aircraft

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft/ Equipment Link ACEQR (continued)	Current Number of Aircraft Equipped	PREAC	I4	The total number of aircraft with this designation in which this equipment is installed or has mounting provision at the start of the current fiscal year
Aircraft/ Modification Link ACMDR	Aircraft T/M/S (/B)	ACMOD	A12	Aircraft type/model/series (/block number) designation
	PIP Number		A8	PIP number in the format YY-XXXX. See MODR in Table A-1 for a complete description.
	PIP Status	AMSTAT	A4	Status of this PIP for this aircraft: CM - Current (Ongoing) Modification FM - Future Planned Modification OM - Optional Modification
	PIP Title	MODSUB	A20	Phrase defining the PIP as it applies to this aircraft

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft/ Modification Link ACMDR (continued)	Funding Type	VFT	A4	Code for funding types: MUL - Multiple SYS - System Level TMS - One Aircraft
Modification Point of Contact AMPOCR	Point of Contact	MODPOC	A14	Point of contact for PIP
	Point-of-Contact Location	MODLOC	A26	Point-of-contact organization and phone number
Avionics Budget VBR	Fiscal Year	VB	I2	Last two digits of fiscal year of PIP budget information
	Schedule Estimation Indicator	VBE	I1	Flag to indicate uncertainty in the beginning or end of the funding schedule. If the indicated fiscal year is first or last in the schedule and uncertain, enter "1". Otherwise, enter "0".
	PIP Budget	VBB	F5.1	Budgeted amount in millions of then-year dollars to accomplish this PIP for this aircraft; not currently used for the APB-A

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Avionics Installations VIR	Fiscal Year	VI	I2	Last two digits of fiscal year of PIP installation information
	Install Quantity	VIQ	I4	Number of aircraft in which avionics changes will be installed in the indicated fiscal year
	Schedule Estimation Indicator	VIE	I1	Flag to indicate uncertainty in the beginning or end of the installation schedule. If the indicated fiscal year is the first or last in the schedule and uncertain, enter "1". Otherwise, enter "0".
Aircraft/ Modification/ Requirements Link AMRQTR	Aircraft T/M/S (/B)	AMRQTL	A12	Aircraft type/model/series (/block number) designation
	PIP Number		A8	A portion of the formally assigned nine-digit PIP number in the format YY-XXXX, where YY = Fiscal year in which initial funds are (were) intended to be spent for the PIP XXXX = Sequence number assigned by the sponsoring subcommand

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Aircraft/ Modification/ Requirements Link AMRQTR (continued)	PIP Number (continued)	AMRQTL	A8	Changes not specified by a formal PIP will be assigned a pseudo-PIP number.
	Requirements Document Number		A16	Reference number of ROC, LR, MN, or LOA need statement
Modification/ Aircraft/ Equipment Link MAER	Type of Avionics Change	TYPCHG	A2	The generic action on this aircraft's avionics accomplished by this PIP: M - Modification R - Replacement A - Addition
Aircraft/ Equipment Footnote AENOTR	Footnote	AENOTE	A100	A comment or explanation that provides additional information for this equipment on this aircraft
Work Unit WUCR	Work Unit Code	WUC	A6	Army work unit code for this black box
	National Stock Number	NSN	A16	National stock number for this black box

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Work Unit WUCR (continued)	Work Unit Code Description	WUCDES	A20	Description of the black box
	Quantity Per Application	WUCQPA	I4	Number of black boxes indicated by this work unit code that are used in this piece of avionics on the indicated aircraft
	Weight	WEIGHT	I6	Weight, in pounds, of the black box
	Spare	WUCSP	A20	Reserved for future use
Reliability RELR	Date of Report	RDATE	A6	Date this report was filed in MMDDYY format (e.g., May 23, 1983 becomes 052383)
	Reporting Interval	REPINT	I2	Number of months covered by this report
	Inventory	RELINV	I6	Number of distinct black boxes with this work unit code in the inventory during this period
	Total Operating Time	RPTIME	I8	Reported total hours of operating time for black boxes with this work unit code in this period

(continued)

TABLE A-11 (continued)

Record	Item			
Generic Name/ SEED Name	Generic Name	SEED Name	Format	Description
Reliability RELR (continued)	Number of Failures	RENG	I5	Total number of failures observed in this period
	Spare	RELSP	A20	Reserved for future use

TABLE A-12

AVIONICS AREA SETS

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
VSAE	Avionics Status VSTATR	Aircraft/Equipment Link ACEQR	These equipments are or will be installed on this aircraft and have the function and status indicated in the owner record.
AMBUD	Aircraft/ Modification Link ACMDR	Avionics Budget VBR	This PIP for this aircraft has funding in the fiscal years indicated in the avionics budget records.
AMRQT	Aircraft/ Modification Link ACMDR	Aircraft/Modification/ Requirements Link AMRQTR	These need statements are requirements for this PIP on this aircraft.
AMPOC	Aircraft/ Modification Link ACMDR	Modification Point of Contact AMPOCR	These modification points of contact are sources of information for this PIP on this aircraft.

(continued)

TABLE A-12 (continued)

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
AMAV	Aircraft/ Modification Link ACMDR	Modification/Aircraft/ Equipment Link MAER	These equipments are modifications, replacements, or additions on this aircraft affected by this PIP.
AMINS	Aircraft/ Modification Link ACMDR	Avionics Installation VIR	This PIP for this aircraft has the installation schedule and installation quantities indicated in these fiscal years.
AEAV	Aircraft/ Equipment Link ACEQR	Modification/Aircraft/ Equipment Link MAER	The PIP indicated by this link record will install this equipment on this aircraft. This set is currently one-to-one.
FUTRE	Aircraft/ Equipment Link ACEQR	Equipment Replacement Link EQLR	This equipment on this aircraft will be replaced by one or more equipments on this aircraft. The link record, EQLR, contains no data items. It serves only to establish the link between equipments and their replacements.

(continued)

TABLE A-12 (continued)

SEED Name	Owner Record/ SEED Name	Member Record/ SEED Name	Meaning of Set Occurrence
REPLC	Aircraft/ Equipment Link ACEQR	Equipment Replacement Link EQLR	This equipment on this aircraft will replace one or more equipments on this aircraft. This set is used in conjunction with the FUTRE set to indicate equipment replacements.
AEWUC	Aircraft/ Equipment Link ACEQR	Work Unit Code WUCR	This equipment on this aircraft consists of these work unit codes.
AENOT	Aircraft/ Equipment Link ACEQR	Aircraft/Equipment Footnote AENOTR	These footnotes provide additional information about this equipment on this aircraft.
WUCREL	Work Unit Code WUCR	Reliability RELR	This work unit code has historical failure data in the years represented by these reliability records.

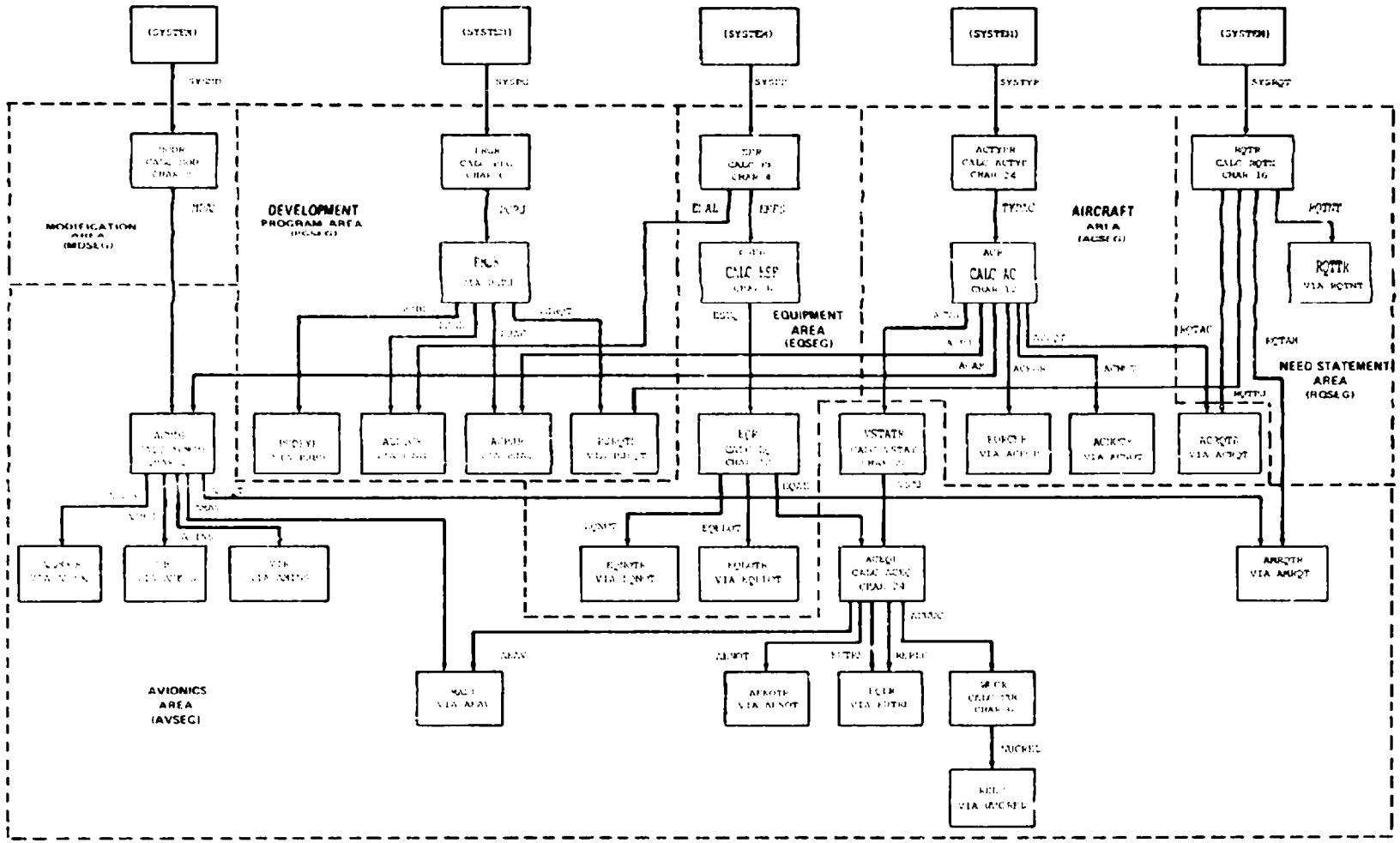
APPENDIX B

APB-A DATA BASE SCHEMA

This appendix supplies a data structure diagram of the APB-A data base, a summary of the modifications made to the Air Force ADUS schema, and a list of the actual Army data base schema Data Definition Language (DDL). Figure B-1 displays the data base structure and the location mode of each record type. The location mode has been inserted within the record rectangle beneath the SEED name of the record. This information also appears in the schema DDL and is necessary to properly access the data base by using Data Manipulation Language (DML) commands. The format for Figure B-1 was adapted from Reference 3.

Table B-1 shows the changes that were made to the ADUS schema. The table contains changes made to existing SEED names and existing item formats. It also contains any items, records, or sets that were added or deleted. The gaps in the table delineate the areas in the data base. The first group of changes after those to the schema name and privacy lock are in the Modification Area. Changes to the Development Program Area, the Equipment Area, the Aircraft Area, the Need Statement Area, and the Avionics Area follow.

The APB-A data base schema is shown in Figure B-2. This DDL was produced by modifying that found in Reference 3. The figure reflects the changes listed in Table B-1. The PDP-11/60 operating environment allows a maximum of 15 areas, 300 items, 30 arrays, 75 records, and 75 sets in a schema. The totals for the Army schema are six areas, 97 items, 0 arrays, 36 records, and 40 sets.



Adapted from Avionics Data Utilization System Data Dictionary (Reference 3).

FIGURE B-1

APB-A DATA BASE STRUCTURE AND ACCESS DETAILS

TABLE B-1

APB-A CHANGES TO ADUS SCHEMA

Category	New Name	Old Name	New Format	Old Format	Remarks
Schema Name	APBASC	ADUSSC	--	--	
Privacy Lock*			--	--	
Item	MODIN	MAXIN		A2	In record MODR
Item	MODPO	MAXPO		A16	In record MODR
Item	PRJIN	PAXIN		A2	In record PRJR
Item	PRJPO	PAXPO		A16	In record PRJR
Record	PJRQTR	PJRSGR	--	--	
Item	PJRQTL	PJRSGL		A26	In record PJRQTR
Set	PJRQT	PJRSG	--	--	PRJR owns PJRQTR
Item		EFT	A32	A26	In record EFR
Item		ESFT	A36	A40	In record ESFR
Item	EQPOC	ALCPOC		A20	In record EQR
Item	EPHONE	LPHONE		A8	In record EQR
Item	EQNAME	ALCNAM		A16	In record EQR
Item	EQTLD	(addition)	I4		In record EQR
Record	EQNOTR	(addition)	--	--	
Item	EQNOTE	(addition)	A100		In record EQNOTR
Set	EQNOT	(addition)	--	--	EQR owns EQNOTR
Item		ACTYP	A24	A16	In record ACTYPR
Item	ACSRT	P3XSRT		I3	In record ACR
Item	FORACT	FORAF		I4	In record FORCER
Item	FORRES	FORAFR		I4	In record FORCER
Item	FORNG	FORANG		I4	In record FORCER
Record	ACRQTR	ACRSGR	--	--	
Item	ACRQTL	ACRSGL		A28	In record ACRQTR
Record	ACNOTR	(addition)	--	--	
Item	ACNOTE	(addition)	A100		In record ACNOTR
Set	ACNOT	(addition)	--	--	ACR owns ACNOTR
Set	ACRQT	ACRSG	--	--	ACR owns ACRQTR

*The privacy lock has been changed, but for data base security reasons, it is not disclosed in this report.

(continued)

TABLE B-1 (continued)

Category	New Name	Old Name	New Format	Old Format	Remarks
Record	RQTR	RSGR	--	--	
Item	RQTN	RSGN		A16	In record RQTR
Record	RQTTR	RSGTR	--	--	
Item	RQTT	RSGT		A60	In record RQTTR
Record	AMRQTR	AMRSGR	--	--	
Item	AMRQTL	AMRSGL		A36	In record AMRQTR
Set	SYSRQT	SYSRSG	--	--	SYSTEM owns RQTR
Set	RQTNT	RSGNT	--	--	RQTR owns RQTTR
Set	RQTAC	RSGAC	--	--	RQTR owns ACRQTR
Set	RQTPJ	RSGPJ	--	--	RQTR owns PJRQTR
Set	RQTAM	RSGAM	--	--	RQTR owns AMRQTR
Item		VQ	I2	I1	In record ACEQR
Item		PREAC	I4	I3	In record ACEQR
Item	(deleted)	MODCLS		I1	In record ACMDR
Item	MODPOC	POC	A14	A10	In record AMPOCR
Item	MODLOC	POCLOC		A26	In record AMPOCR
Record	VIR	(addition)	--	--	
Item	VI	(addition)	I2		In record VIR
Item	VIQ	(addition)	I4		In record VIR
Item	VIE	(addition)	I1		In record VIR
Set	AMINS	(addition)	--	--	ACMDR owns VIR
Item	VBE	VBQ	I1	I4	In record VBR
Item	TYPCHG	(addition)	A2		In record MAER
Record	AENOTR	(addition)	--	--	
Item	AENOTE	(addition)	A100		In record AENOTR
Set	AENOT	(addition)	--	--	ACEQR owns AENOTR
Set	AMRQT	AMRSG	--	--	ACMDR owns AMRQTR

```
SCHEMA NAME IS APBASC
     PRIVACY LOCK IS        .

AREA NAME IS MDSEG
     AREA SIZE IS 29 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

AREA NAME IS PGSEG
     AREA SIZE IS 307 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

AREA NAME IS EQSEG
     AREA SIZE IS 521 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

AREA NAME IS ACSEG
     AREA SIZE IS 397 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

AREA NAME IS RQSEG
     AREA SIZE IS 83 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

AREA NAME IS AVSEG
     AREA SIZE IS 3061 DYNAMIC PAGES
     PAGE SIZE IS 256 WORDS.

RECORD NAME IS MODR
     LOCATION MODE IS CALC USING MOD
     DUPLICATES ARE NOT ALLOWED
     WITHIN MDSEG.
   MOD     TYPE CHARACTER 8.
   MODIN   TYPE CHARACTER 2.
   MODPO   TYPE CHARACTER 16.

RECORD NAME IS PRGR
     LOCATION MODE IS CALC USING PRG
     DUPLICATES ARE NOT ALLOWED
     WITHIN PGSEG.
   PRG     TYPE CHARACTER 6.
   PRGN    TYPE CHARACTER 26.

RECORD NAME IS PRJR
     LOCATION MODE IS VIA PGPJ
     WITHIN PGSEG.
   PRJ     TYPE CHARACTER 4.
   PRJN    TYPE CHARACTER 26.
   PRJMIS  TYPE CHARACTER 20.
   PRJIN   TYPE CHARACTER 2.
   PRJPO   TYPE CHARACTER 16.
   PROAV   TYPE REAL.
```

FIGURE B-2

DATA BASE SCHEMA

```
RECORD NAME IS BUDFYR
     LOCATION MODE IS VIA PJBD
     WITHIN PGSEG.
   SORCE   TYPE CHARACTER 8.
   YR1     TYPE FIXED.
   BUDYR1  TYPE REAL.
   BUDYR2  TYPE REAL.
   BUDYR3  TYPE REAL.
   BUDYR4  TYPE REAL.
   BUDYR5  TYPE REAL.
   BUDYR6  TYPE REAL.
   BUDYR7  TYPE REAL.
   BUDYR8  TYPE REAL.

RECORD NAME IS PJRQTR
     LOCATION MODE IS VIA PJRQT
     WITHIN PGSEG.
   PJRQTL TYPE CHARACTER 26.

RECORD NAME IS ACPJR
     LOCATION IS VIA PJAC
     WITHIN PGSEG.
   ACPJL   TYPE CHARACTER 22.

RECORD NAME IS ALLOCR
     LOCATION MODE IS VIA PJAL
     WITHIN PGSEG.
   FCTALL TYPE REAL.

RECORD NAME IS EFR
     LOCATION MODE IS CALC USING EF
     DUPLICATES ARE NOT ALLOWED
     WITHIN EQSEG.
   EF      TYPE CHARACTER 4.
   EFT     TYPE CHARACTER 32.
   EG      TYPE CHARACTER 4.

RECORD NAME IS ESFR
     LOCATION MODE IS CALC USING ESF
     DUPLICATES ARE NOT ALLOWED
     WITHIN EQSEG.
   ESF     TYPE CHARACTER 6.
   ESFT    TYPE CHARACTER 36.
```

FIGURE B-2 (continued)

```
RECORD NAME IS EQR
     LOCATION MODE IS CALC USING EQ
     DUPLICATES ARE NOT ALLOWED
     WITHIN EQSEG.
   EQ       TYPE CHARACTER 12.
   EQDES    TYPE CHARACTER 20.
   SPI      TYPE CHARACTER 4.
   AUC      TYPE FIXED.
   QTY      TYPE FIXED.
   YR       TYPE FIXED.
   FU       TYPE FIXED.
   FUYR     TYPE FIXED.
   EQPOC    TYPE CHARACTER 20.
   EPHONE   TYPE CHARACTER 8.
   EQNAM    TYPE CHARACTER 16.
   EQTLD    TYPE FIXED.
   EQSP     TYPE CHARACTER 16.

RECORD NAME IS EQLOTR
     LOCATION MODE IS VIA EQELOT
     WITHIN EQSEG.
   LOTYR    TYPE FIXED.
   LOTQTY   TYPE FIXED.
   CONT     TYPE CHARACTER 16.
   COMP     TYPE CHARACTER 4.
   GFECFE   TYPE CHARACTER 4.
   EQLTSP   TYPE CHARACTER 10.

RECORD NAME IS EQNOTR
     LOCATION MODE IS VIA EQNOT
     WITHIN EQSEG.
   EQNOTE   TYPE CHARACTER 100.

RECORD NAME IS ACTYPR
     LOCATION MODE IS CALC USING ACTYP
     DUPLICATES ARE NOT ALLOWED
     WITHIN ACSEG.
   ACTYP    TYPE CHARACTER 24.

RECORD NAME IS ACR
     LOCATION MODE IS CALC USING AC
     DUPLICATES ARE NOT ALLOWED
     WITHIN ACSEG.
   AC       TYPE CHARACTER 12.
   ACSRT    TYPE IS FIXED.
   ACM1     TYPE CHARACTER 20.
   ACM2     TYPE CHARACTER 20.
   ACM3     TYPE CHARACTER 20.
   ACSYS    TYPE FIXED.
```

FIGURE B-2 (continued)

```
RECORD NAME IS FORCER
     LOCATION MODE IS VIA ACFOR
     WITHIN ACSEG.
   FORCE   TYPE FIXED.
   FORACT TYPE FIXED.
   FORRES TYPE FIXED.
   FORNG   TYPE FIXED.

RECORD NAME IS ACRQTR
     LOCATION MODE IS VIA ACRQT
     WITHIN ACSEG.
   ACRQTL TYPE CHARACTER 28.

RECORD NAME IS ACNOTR
     LOCATION MODE IS VIA ACNOT
     WITHIN ACSEG.
   ACNOTE TYPE CHARACTER 100.

RECORD NAME IS RQTR
     LOCATION MODE IS CALC USING RQTN
     DUPLICATES ARE NOT ALLOWED
     WITHIN RQSEG.
   RQTN    TYPE CHARACTER 16.

RECORD NAME IS RQTTR
     LOCATION MODE IS VIA RQTNT
     WITHIN RQSEG.
   RQTT    TYPE CHARACTER 60.

RECORD NAME IS AMRQTR
     LOCATION MODE IS VIA AMRQT
     WITHIN AVSEG.
   AMRQTL TYPE CHARACTER 36.

RECORD NAME IS VSTATR
     LOCATION MODE IS CALC USING VSTAT
     DUPLICATES ARE NOT ALLOWED
     WITHIN AVSEG.
   VSTAT   TYPE CHARACTER 20.

RECORD NAME IS ACEQR
     LOCATION MODE IS CALC USING ACEQ
     DUPLICATES ARE NOT ALLOWED
     WITHIN AVSEG.
   ACEQ    TYPE CHARACTER 24.
   VQ      TYPE FIXED.
   PREAC   TYPE FIXED.
```

FIGURE B-2 (continued)

```
RECORD NAME IS EQLR
     LOCATION MODE IS VIA FUTRE
     WITHIN AVSEG.

RECORD NAME IS VIR
     LOCATION MODE IS VIA AMINS
     WITHIN AVSEG.
   VI       TYPE FIXED.
   VIQ      TYPE FIXED.
   VIE      TYPE FIXED.

RECORD NAME ACMDR
     LOCATION MODE IS CALC USING ACMOD
     DUPLICATES ARE NOT ALLOWED
     WITHIN AVSEG.
   ACMOD   TYPE CHARACTER 20.
   AMSTAT  TYPE CHARACTER 4.
   MODSUB  TYPE CHARACTER 20.
   VFT     TYPE CHARACTER 4.

RECORD NAME IS AMPOCR
     LOCATION MODE IS VIA AMPOC
     WITHIN AVSEG.
   MODPOC  TYPE CHARACTER 14.
   MODLOC  TYPE CHARACTER 26.

RECORD NAME IS MAER
     LOCATION MODE IS VIA AEAV
     WITHIN AVSEG.
   TYPCHG  TYPE CHARACTER 2.

RECORD NAME IS WUCR
     LOCATION MODE IS CALC USING WUC
     DUPLICATES ARE NOT ALLOWED
     WITHIN AVSEG.
   WUC      TYPE CHARACTER 6.
   NSN      TYPE CHARACTER 16.
   WUCDES   TYPE CHARACTER 20.
   QPA      TYPE FIXED.
   WEIGHT   TYPE FIXED.
   WUSP     TYPE CHARACTER 20.

RECORD NAME IS RELR
     LOCATION MODE IS VIA WUCREL
     WITHIN AVSEG.
   RDATE    TYPE CHARACTER 6.
   REPINT   TYPE FIXED.
   RELINV   TYPE FIXED.
   RPTIME   TYPE FIXED.
   RENG     TYPE FIXED.
   RELSP    TYPE CHARACTER 20.
```

FIGURE B-2 (continued)

```
RECORD NAME IS AENOTR
    LOCATION MODE IS VIA AENOT
    WITHIN AVSEG.
  AENOTE TYPE CHARACTER 100.

RECORD NAME IS VBR
    LOCATION MODE IS VIA AMBUD
    WITHIN AVSEG.
  VB      TYPE FIXED.
  VBE     TYPE FIXED.
  VBB     TYPE REAL.

SET NAME IS SYSMD
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS SYSTEM
  MEMBER IS MODR MANDATORY AUTOMATIC
    ASCENDING KEY IS MOD DUPLICATES NOT
    SET SELECTION THRU CURRENT OF SET.

SET NAME IS MDAM
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS MODR
  MEMBER IS ACMDR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY IS ACMOD DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS SYSPG
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS SYSTEM
  MEMBER IS PRGR MANDATORY AUTOMATIC
    ASCENDING KEY IS PRG DUPLICATES NOT
    SET SELECTION THRU CURRENT OF SET.

SET NAME IS PGPJ
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS PRGR
  MEMBER IS PRJR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY IS PRJ DUPLICATES NOT
    SET SELECTION IS THRU LOCATION MODE OF OWNER.

SET NAME IS PJBD
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS PRJR
  MEMBER IS BUDFYR MANDATORY AUTOMATIC
    ASCENDING KEY IS SORCE DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.
```

FIGURE B-2 (continued)

```
SET NAME IS PJAL
     MODE CHAIN LINKED PRIOR
     ORDER IS FIRST
   OWNER IS PRJR
   MEMBER IS ALLOCR MANDATORY AUTOMATIC
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS PJRQT
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS PRJR
   MEMBER IS PJRQTR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY PJRQTL DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS PJAC
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS PRJR
   MEMBER IS ACPJR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY IS ACPJL DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS SYSEF
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS SYSTEM
   MEMBER IS EFR MANDATORY AUTOMATIC
     ASCENDING KEY EF DUPLICATES NOT
     SET SELECTION THRU CURRENT OF SET.

SET NAME IS EFES
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS EFR
   MEMBER IS ESFR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY IS ESF DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ESEQ
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS ESFR
   MEMBER IS EQR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY IS EQ DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.
```

FIGURE B-2 (continued)

```
SET NAME IS EFAL
     MODE CHAIN
     ORDER IS FIRST
  OWNER IS EFR
  MEMBER IS ALLOCR MANDATORY AUTOMATIC LINKED TO OWNER
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS EQELOT
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
  OWNER IS EQR
  MEMBER IS EQLOTR MANDATORY AUTOMATIC
     ASCENDING KEY LOTYR DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS EQAE
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
  OWNER IS EQR
  MEMBER IS ACEQR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY ACEQ DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS EQNOT
     MODE CHAIN
     ORDER IS LAST
  OWNER IS EQR
  MEMBER IS EQNOTR
     SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS SYSTYP
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS SYSTEM
   MEMBER IS ACTYPR MANDATORY AUTOMATIC
     ASCENDING KEY IS ACTYP DUPLICATES NOT
     SET SELECTION THRU CURRENT OF SET.

 SET NAME IS TYPAC
     MODE CHAIN LINKED PRIOR
     ORDER IS SORTED
   OWNER IS ACTYPR
   MEMBER IS ACR MANDATORY AUTOMATIC LINKED TO OWNER
     ASCENDING KEY IS AC DUPLICATES NOT
     SET SELECTION THRU LOCATION MODE OF OWNER.
```

FIGURE B-2 (continued)

```
SET NAME IS ACFOR
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACR
  MEMBER IS FORCER MANDATORY AUTOMATIC
    ASCENDING KEY FORCE DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ACRQT
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACR
  MEMBER IS ACRQTR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY IS ACRQTL DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ACVS
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACR
  MEMBER IS VSTATR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY VSTAT DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ACAM
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACR
  MEMBER IS ACMDR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY ACMOD DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ACPJ
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACR
  MEMBER IS ACPJR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY ACPJL DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS ACNOT
    MODE CHAIN
    ORDER IS LAST
  OWNER IS ACR
  MEMBER IS ACNOTR
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS SYSRQT
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
```

FIGURE B-2 (continued)

```
    OWNER IS SYSTEM
    MEMBER IS RQTR MANDATORY AUTOMATIC
      ASCENDING KEY RQTN DUPLICATES NOT
      SET SELECTION THRU CURRENT OF SET.

  SET NAME IS RQTAC
      MODE CHAIN LINKED PRIOR
      ORDER IS SORTED
    OWNER IS RQTR
    MEMBER IS ACRQTR MANDATORY AUTOMATIC LINKED TO OWNER
      ASCENDING KEY ACRQTL DUPLICATES NOT
      SET SELECTION THRU LOCATION MODE OF OWNER.

  SET NAME IS RQTNT
      MODE CHAIN
      ORDER IS LAST
    OWNER IS RQTR
    MEMBER IS RQTTR MANDATORY AUTOMATIC
      SET SELECTION THRU LOCATION MODE OF OWNER.

  SET NAME IS RQTPJ
      MODE CHAIN LINKED PRIOR
      ORDER IS SORTED
    OWNER IS RQTR
    MEMBER IS PJRQTR MANDATORY AUTOMATIC LINKED TO OWNER
      ASCENDING KEY PJRQTL DUPLICATES NOT
      SET SELECTION THRU LOCATION MODE OF OWNER.

  SET NAME IS RQTAM
      MODE CHAIN LINKED PRIOR
      ORDER IS SORTED
    OWNER IS RQTR
    MEMBER IS AMRQTR MANDATORY AUTOMATIC LINKED TO OWNER
      ASCENDING KEY IS AMRQTL DUPLICATES NOT
      SET SELECTION THRU LOCATION MODE OF OWNER.

  SET NAME IS VSAE
      MODE CHAIN LINKED PRIOR
      ORDER IS SORTED
    OWNER IS VSTATR
    MEMBER IS ACEQR MANDATORY AUTOMATIC LINKED TO OWNER
      ASCENDING KEY ACEQ DUPLICATES NOT
      SET SELECTION THRU LOCATION MODE OF OWNER.

  SET NAME IS FUTRE
      MODE CHAIN
      ORDER IS FIRST
    OWNER IS ACEQR
    MEMBER IS EQLR MANDATORY AUTOMATIC
      SET SELECTION THRU LOCATION MODE OF OWNER
      ALIAS FOR ACEQ IS EQREPL.
```

FIGURE B-2 (continued)

```
SET NAME IS REPLC
    MODE CHAIN
    ORDER IS FIRST
  OWNER IS ACEQR
  MEMBER IS EQLR MANDATORY AUTOMATIC
    SET SELECTION THRU LOCATION MODE OF OWNER
    ALIAS FOR ACEQ IS FUTREQ.

SET NAME IS AEAV
    MODE CHAIN
    ORDER IS FIRST
  OWNER IS ACEQR
  MEMBER IS MAER MANDATORY AUTOMATIC
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AENOT
    MODE CHAIN
    ORDER IS LAST
  OWNER IS ACEQR
  MEMBER IS AENOTR
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AMBUD
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACMDR
  MEMBER IS VBR MANDATORY AUTOMATIC
    ASCENDING KEY VB DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AMINS
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACMDR
  MEMBER IS VIR MANDATORY AUTOMATIC
    ASCENDING KEY IS VI DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AMAV
    MODE IS CHAIN
    ORDER IS FIRST
  OWNER IS ACMDR
  MEMBER IS MAER MANDATORY AUTOMATIC LINKED TO OWNER
    SET SELECTION THRU LOCATION MODE OF OWNER.
```

FIGURE B-2 (continued)

```
SET NAME IS AMRQT
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACMDR
  MEMBER IS AMRQTR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY AMRQTL DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AMPOC
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACMDR
  MEMBER IS AMPOCR MANDATORY AUTOMATIC
    ASCENDING KEY MODPOC DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS AEWUC
    MODE CHAIN LINKED PRIOR
    ORDER IS SORTED
  OWNER IS ACEQR
  MEMBER IS WUCR MANDATORY AUTOMATIC LINKED TO OWNER
    ASCENDING KEY WUC DUPLICATES NOT
    SET SELECTION THRU LOCATION MODE OF OWNER.

SET NAME IS WUCREL
    MODE CHAIN
    ORDER IS FIRST
  OWNER IS WUCR
  MEMBER IS RELR MANDATORY AUTOMATIC

      SET SELECTION THRU LOCATION MODE OF OWNER.
  >
```

FIGURE B-2 (continued)

APPENDIX C

DATA BASE LOADING AND INPUT DATA CODING FORMS

This appendix describes the procedures necessary to populate the APB-A data base. Although this discussion addresses primarily the initial data load through SPROUT, it is equally applicable to data modification procedures such as are available through the SEED utility GARDEN. Eleven sets of input data coding forms are included to aid in placing APB-A data into the transaction input files, described in Section 2 of this appendix.

1. SEGMENTATION OF DATA

Because of the complexity of the APB-A data base structure and the fact that the data base uses a network to represent a relational data base, it is necessary to segment the data into manageable subsets. The primary reason for doing this is to provide for the relationships defined in the data base schema. Several records in the APB-A data base are owned by two structurally higher records. For example, the record ACEQR (aircraft/equipment record) is owned by both the equipment record (EQR) and the avionics status record (VSTATR). To load a particular occurrence of record ACEQR, both owner records (EQR and VSTATR) must already be loaded. This ensures that the proper set linkages (EQR to ACEQR and VSTATR to ACEQR) are established at the instant the ACEQR data are loaded.

Table C-1 describes the segmentation of the APB-A data. The particular segmentation was chosen to ensure that the data relationships of the schema are properly implemented at data load time, and to logically group the data into manageable and meaningful subsets.

2. DATA LOADING

Examination of the data segments reveals that the data base was divided into upper, middle, and lower levels. This structured or hierarchical division is the method by which the data relationships are preserved during a data load. This technique of top-down loading ensures that owner records are loaded before owned records.

For the APB-A data base, several segments may be grouped into sequential transaction input files. These files correspond roughly to the upper, middle, and lower levels of the data base structure. Those data segments which load mutually independent data have been grouped together to form four transaction files. They are shown in Table C-2.

TABLE C-1

DATA SEGMENTATION

Segment	Data Contents (Records)
A	MODR
B	PRGR, PRJR, BUDFYR, ACPJR, PJRQTR, ALLOCR
C	EFR, ESFR, EQR, EQNOTR, EQLOTR
D	ACTYPR, ACR, ACNOTR, FORCER, VSTATR
E	RQTR, RQTTR
F	ACMDR, AMPOCR, VBR, VIR
G	ACEQR, AENOTR, WUCR, RELR
H	EQLR
I	MAER
J	ACRQTR
K	AMRQTR

Table C-2

TRANSACTION INPUT FILES

File	Data Segments
INPT1	A, C, D, E
INPT2	B
INPT3	F, G
INPT4	H, I, J, K

The INPT1 transaction file is used to load any or all upper-level data contained in segments A, C, D, and E. The data found in any one of these segments are independent of the data in the other three segments. This file could be used to load each segment separately or to load any combination of two or more of the segments. It constitutes the first loading sequence of the data base.

INPT2 is used to load upper- and middle-level data contained in segment B. This file is unique in that it is used to load only one data segment. This is necessary because of the complexity of segment B. This segment contains the only record (PRJR) that participates as a joint owner

of one or more records and that does not have a CALC key. Two criteria determine the ease of loading jointly owned records:

- The owner records have a LOCATION MODE IS CALC DUPLICATES NOT ALLOWED clause in the record description area of the schema.

- The owned records are linked to the owner by two sets that both have a SET SELECTION THRU LOCATION MODE OF OWNER clause in the set description area of the schema.

These two criteria alone enable jointly owned records to be loaded properly by simply specifying the CALC keys of the two immediate owners. Because record PRJR is specified as LOCATION MODE IS VIA PGPJ set, any records owned by a particular occurrence of PRJR must be loaded at the same time PRJR is loaded to ensure proper set linkages. Three such records are owned by record PRJR: (1) ALLOCR (also linked to EFR in segment C), (2) ACPJR (also linked to ACR in segment D), and (3) PJRQTR (also linked to RQTR in segment E). For this reason, load segment B can be loaded only after load segments C, D, and E have been loaded. INPT2 is the second loading sequence of the data base.

The third loading sequence of the data base uses input file INPT3 and loads data in segments F and G. Both of these load segments contain middle- and lower-level data. Any jointly owned records found in these segments satisfy the two rules described above and are easily loaded. This file may be used to load either segment F or G independently or both at once.

The final load sequence uses the INPT4 file and loads lower-level data found in segments H, I, J, and K. All records in these segments satisfy the joint ownership loading rules previously outlined. Any combination of one or more of these segments may be simultaneously loaded with this input file.

3. TRANSACTION INPUT PROCESSOR

The SPROUT Transaction Input Processor (TRIN) must be executed to actually load the transaction input files into the initialized data base areas. TRIN requires a transaction input file, a transaction definition library, and a subschema. A separate transaction definition library is prepared for each input file by compiling a Transaction Definition Language (TDL) written for the file. See Reference 1 for details on the preparation of TDL. TRIN must be invoked for each of the four transaction input files.

4. INPUT DATA CODING FORMS

Eleven sets of input data coding forms are included in this appendix, one for each load segment. Each set contains one or more pages. The top of the first page of sets A through G displays the load configuration for the segment. This consists of those record types to be loaded with that set of forms. Each set provides room for a reasonable number of occurrences of each record type. This quantity appears in parentheses before

the SEED record name. If more space is required, additional copies of the appropriate form from that set can be used with little or no modification necessary. If a record type is indented, that signifies it is owned by the last record above it that appears at a lesser level of indention. This indicates a one-to-many relationship, and sufficient formatted space is allowed for the indicated number of owned record occurrences for each owner record occurrence specified.

Sets F and G also load record types that are owned by two other record types, i.e., these record types participate in two sets. These forms, together with the forms for sets H through K, which load a single jointly owned record type, depict the set relationships in which those records with joint owners belong.

All forms contain the required CALC keys to establish the proper set linkages when the data are loaded. Each load segment should be prepared separately and then combined into the transaction input files described in Section 2 of this appendix.

5. DATA MODIFICATION

Using the SEED utility program, GARDEN, the user may load any data desired providing that occurrences of owner records are loaded or properly identified before owned records are loaded. This may be accomplished in a partial segment data load by using the several FIND commands in GARDEN to first establish the occurrence of an existing owner record before adding a new owned record beneath that particular owner. Loading of complete data segments through GARDEN would proceed in the same manner as described above.

** LOAD SEGMENT A *** *** INPUT CODING FORMS ***

******* ********** *** **********

LOAD CONFIGURATION

(1) MODR

******* ********** *** **********

MODR	MODIFICATION RECORD	***	A 1
MOD	PIP NUMBER	C08	_ _ _ _ _ _ _ _
MODIN	ASID INVOLVEMENT	C02	_ _
MODPO	ASID PROJECT OFFICER	C16	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

**** LOAD SEGMENT B *** *** INPUT CODING FORMS ***

LOAD CONFIGURATION

(1) PRGR
  (1) PRJR
    (3) BUDFYR
    (6) ACPJR
    (5) PJRQTR
    (5) ALLOCR

PRGR	PROGRAM ELEMENT RECORD	---	|B|1|
PRG	PROGRAM ELEMENT NUMBER	C06	|_|_|_|_|_|_|
PRGN	PROGRAM ELEMENT TITLE	C26	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
PRJR	PROJECT RECORD	---	|B|2|
PRJ	PROJECT NUMBER	C04	|_|_|_|_|_|
PRJN	PROJECT TITLE	C26	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
PRJMIS	MISSION AREA	C20	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
PRJIN	ASID INVOLVEMENT	C02	|_|_|
PRJPO	ASID PROJECT OFFICER	C16	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
PROAV	PROPORTION AVIONICS	N04	|_|_|_|_|

BUDFYR	BUDGET RECORD	---	|B|3|
SORCE	SOURCE	C08	C03 |_|_|_|
	LEVEL		C03 |_|_|_|
	YEAR SUPPLIED		N02 |_|_|
YR1	FIRST YEAR	N02	|_|_|
BUDYR1	BUDGET FY 1	N08	|_|_|_|_|_|_|.|_|
BUDYR2	BUDGET FY 2	N08	|_|_|_|_|_|_|.|_|
BUDYR3	BUDGET FY 3	N08	|_|_|_|_|_|_|.|_|
BUDYR4	BUDGET FY 4	N08	|_|_|_|_|_|_|.|_|
BUDYR5	BUDGET FY 5	N08	|_|_|_|_|_|_|.|_|
BUDYR6	BUDGET FY 6	N08	|_|_|_|_|_|_|.|_|
BUDYR7	BUDGET FY 7	N08	|_|_|_|_|_|_|.|_|
BUDYR8	BUDGET FY 8	N08	|_|_|_|_|_|_|.|_|

BUDFYR	BUDGET RECORD	***	|B|3|
SORCE	SOURCE	C08	C03 |_|_|_|
	LEVEL		C03 |_|_|_|
	YEAR SUPPLIED		N02 |_|_|
YR1	FIRST YEAR	N02	|_|_|
BUDYR1	BUDGET FY 1	N08	|_|_|_|.|_|_|_|.|_|
BUDYR2	BUDGET FY 2	N08	|_|_|_|.|_|_|_|.|_|
BUDYR3	BUDGET FY 3	N08	|_|_|_|.|_|_|_|.|_|
BUDYR4	BUDGET FY 4	N08	|_|_|_|.|_|_|_|.|_|
BUDYR5	BUDGET FY 5	N08	|_|_|_|.|_|_|_|.|_|
BUDYR6	BUDGET FY 6	N08	|_|_|_|.|_|_|_|.|_|
BUDYR7	BUDGET FY 7	N08	|_|_|_|.|_|_|_|.|_|
BUDYR8	BUDGET FY 8	N08	|_|_|_|.|_|_|_|.|_|

BUDFYR	BUDGET RECORD	---	|B|3|
SORCE	SOURCE	C08	C03 |_|_|_|
	LEVEL		C03 |_|_|_|
	YEAR SUPPLIED		N02 |_|_|
YR1	FIRST YEAR	N02	|_|_|
BUDYR1	BUDGET FY 1	N08	|_|_|_|_|_|_|_|_|
BUDYR2	BUDGET FY 2	N08	|_|_|_|_|_|_|_|_|
BUDYR3	BUDGET FY 3	N08	|_|_|_|_|_|_|_|_|
BUDYR4	BUDGET FY 4	N08	|_|_|_|_|_|_|_|_|
BUDYR5	BUDGET FY 5	N08	|_|_|_|_|_|_|_|_|
BUDYR6	BUDGET FY 6	N08	|_|_|_|_|_|_|_|_|
BUDYR7	BUDGET FY 7	N08	|_|_|_|_|_|_|_|_|
BUDYR8	BUDGET FY 8	N08	|_|_|_|_|_|_|_|_|

```
*******   ******************   ***   ****************************************

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|

ACPJR     AIRCRAFT/PROJECT     ---   ----------------------------------------
          RECORD                     |B|4|

ACPJL     AIRCRAFT T/M/S       C22   C12  |_|_|_|_|_|_|_|_|_|_|_|_|

          PROGRAM ELEMENT NO.        C06  |_|_|_|_|_|_|

          PROJECT NUMBER             C04  |_|_|_|_|
```

```
*******  *******************  ***  *****************************************

PJRQTR   PRJECT/REQUIREMENT   ---  -----------------------------------------
         RECORD                    |B|5|

PJRQTL   PROGRAM ELEMENT NUM  C26  C06 |_|_|_|_|_|_|

         PROJECT NUMBER            C04 |_|_|_|_|

         REQUIREMENT NUMBER        C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

PJRQTR   PRJECT/REQUIREMENT   ---  -----------------------------------------
         RECORD                    |B|5|

PJRQTL   PROGRAM ELEMENT NUM  C26  C06 |_|_|_|_|_|_|

         PROJECT NUMBER            C04 |_|_|_|_|

         REQUIREMENT NUMBER        C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

PJRQTR   PRJECT/REQUIREMENT   ---  -----------------------------------------
         RECORD                    |B|5|

PJRQTL   PROGRAM ELEMENT NUM  C26  C06 |_|_|_|_|_|_|

         PROJECT NUMBER            C04 |_|_|_|_|

         REQUIREMENT NUMBER        C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

PJRQTR   PRJECT/REQUIREMENT   ---  -----------------------------------------
         RECORD                    |B|5|

PJRQTL   PROGRAM ELEMENT NUM  C26  C06 |_|_|_|_|_|_|

         PROJECT NUMBER            C04 |_|_|_|_|

         REQUIREMENT NUMBER        C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

PJRQTR   PRJECT/REQUIREMENT   ---  -----------------------------------------
         RECORD                    |B|5|

PJRQTL   PROGRAM ELEMENT NUM  C26  C06 |_|_|_|_|_|_|

         PROJECT NUMBER            C04 |_|_|_|_|

         REQUIREMENT NUMBER        C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
```

```
*******  *******************  ***  ***************************************

ALLOCR   FUNCTION ALLOCATION  ---  ---------------------------------------
         RECORD                    |B|6|

EF       EFR CALC KEY
         EQUIP FUNCTION       C04  |_|_|_|_|

FCTALL   FRACTION ALLOCATION  N04  |_|.|_|_|

ALLOCR   FUNCTION ALLOCATION  ---  ---------------------------------------
         RECORD                    |B|6|

EF       EFR CALC KEY
         EQUIP FUNCTION       C04  |_|_|_|_|

FCTALL   TRACTION ALLOCATION  N04  |_|.|_|_|

ALLOCR   FUNCTION ALLOCATION  ---  ---------------------------------------
         RECORD                    |B|6|

EF       EFR CALC KEY
         EQUIP FUNCTION       C04  |_|_|_|_|

FCTALL   FRACTION ALLOCATION  N04  |_|.|_|_|

ALLOCR   FUNCTION ALLOCATION  ---  ---------------------------------------
         RECORD                    |B|6|

EF       EFR CALC KEY
         EQUIP FUNCTION       C04  |_|_|_|_|

FCTALL   FRACTION ALLOCATION  N04  |_|.|_|_|

ALLOCR   FUNCTION ALLOCATION  ---  ---------------------------------------
         RECORD                    |B|6|

EF       EFR CALC KEY
         EQUIP FUNCTION       C04  |_|_|_|_|

FCTALL   FRACTION ALLOCATION  N04  |_|.|_|_|
```

*** LOAD SEGMENT C *** *** INPUT CODING FORMS ***

******* ********** *** **********

LOAD CONFIGURATION

(1) EFR
  (1) ESFR
    (1) EQR
      (2) EQNOTR
      (4) EQLOTR

******* ********** *** **********

EFR	EQ FUNCTION RECORD	***	C 1
EF	EQUIPMENT FUNCTION CODE	C04	
EFT	FUNCTION DESCR	C32	
EG	EQUIPMENT GROUP	C04	
ESFR	EQ SUBFUNC RECORD	***	C 2
ESF	SUBFUNCTION CODE	C06	
ESFT	SUBFUNCTION DESCRP	C36	

EQR	EQUIPMENT RECORD	***	C 3
EQ	EQ NOMENCLATURE	C12	
EQDES	EQ DESCRIPTION	C20	
SPI	PREFERRED ITEM	C04	
AUC	AVG UNIT COST	N06	
QTY	QUANTITY	N08	
YR	YEAR OF INFORMATION	N02	
FU	FIRST UNIT COST	N06	
FUYR	FIRST UNIT COST YR	N02	
EQPOC	EQ POC ORGANIZATION	C20	
EPHONE	EQ POC PHONE NUMBER	C08	
EQNAM	EQ POINT OF CONTACT	C16	
EQTLD	TERM LOGISTICS DATE	N04	
EQNOTR	EQ FOOTNOTE RECORD	***	C 4
EQNOTE	EQUIPMENT FOOTNOTE	C100	
EQNOTR	EQ FOOTNOTE RECORD	***	C 4
EQNOTE	EQUIPMENT FOOTNOTE	C100	

```
EQLOTR   EQ LOT RECORD        ---   ------------------------------------------
                                    |C|S|
LOTYR    FIRST YEAR OF LOT    N02   |_|_|
LOTQTY   LOT QUANTITY         N05   |_|_|_|_|_|
CONT     CONTRACTOR           C16   |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
COMP     COMPETITION          C04   |_|_|_|_|
GFECFE   GFE/CFE INDICATOR    C04   |_|_|_|_|
EQLOTR   EQ LOT RECORD        ---   ------------------------------------------
                                    |C|S|
LOTYR    FIRST YEAR OF LOT    N02   |_|_|
LOTQTY   LOT QUANTITY         N05   |_|_|_|_|_|
CONT     CONTRACTOR           C16   |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
COMP     COMPETITION          C04   |_|_|_|_|
GFECFE   GFE/CFE INDICATOR    C04   |_|_|_|_|
EQLOTR   EQ LOT RECORD        ---   ------------------------------------------
                                    |C|S|
LOTYR    FIRST YEAR OF LOT    N02   |_|_|
LOTQTY   LOT QUANTITY         N05   |_|_|_|_|_|
CONT     CONTRACTOR           C16   |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
COMP     COMPETITION          C04   |_|_|_|_|
GFECFE   GFE/CFE INDICATOR    C04   |_|_|_|_|
EQLOTR   EQ LOT RECORD        ---   ------------------------------------------
                                    |C|S|
LOTYR    FIRST YEAR OF LOT    N02   |_|_|
LOTQTY   LOT QUANTITY         N05   |_|_|_|_|_|
CONT     CONTRACTOR           C16   |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
COMP     COMPETITION          C04   |_|_|_|_|
GFECFE   GFE/CFE INDICATOR    C04   |_|_|_|_|
```

*** LOAD SEGMENT D *** *** INPUT CODING FORMS ***

LOAD CONFIGURATION

(1) ACTYPR
  (1) ACR
    (2) ACNOTR
    (10) FORCER
    (8) VSTATR

ACTYPR	AIRCRAFT TYPE RECORD	---	|D|1|
ACTYP	AIRCRAFT TYPE	C24	
ACR	AIRCRAFT RECORD	---	|D|2|
AC	AIRCRAFT T/M/S	C12	
ACSRT	SORT KEY	N03	
ACM1	MISSION 1	C20	
ACM2	MISSION 2	C20	
ACM3	MISSION 3	C20	
ACSYS	SYSTEM MANAGER	N03	
ACNOTR	AIRCRAFT FOOTNOTE RECORD	---	|D|3|
ACNOTE	AIRCRAFT FOOTNOTE	C100	
ACNOTR	AIRCRAFT FOOTNOTE RECORD	---	|D|3|
ACNOTE	AIRCRAFT FOOTNOTE	C100	

```
FORCER   FORCE STRUCTURE      ---   -----------------------------------------
         RECORD                     |D|4|

FORCE    FISCAL YEAR          N02   |_|_|

FORACT   ACTIVE ARMY FORCES   N04   |_|_|_|_|

FORRES   ARMY RESERVE FORCES  N04   |_|_|_|_|

FORNG    ARMY NATL GUARD      N04   |_|_|_|_|

FORCER   FORCE STRUCTURE      ---   -----------------------------------------
         RECORD                     |D|4|

FORCE    FISCAL YEAR          N02   |_|_|

FORACT   ACTIVE ARMY FORCES   N04   |_|_|_|_|

FORRES   ARMY RESERVE FORCES  N04   |_|_|_|_|

FORNG    ARMY NATL GUARD      N04   |_|_|_|_|

FORCER   FORCE STRUCTURE      ---   -----------------------------------------
         RECORD                     |D|4|

FORCE    FISCAL YEAR          N02   |_|_|

FORACT   ACTIVE ARMY FORCES   N04   |_|_|_|_|

FORRES   ARMY RESERVE FORCES  N04   |_|_|_|_|

FORNG    ARMY NATL GUARD      N04   |_|_|_|_|

FORCER   FORCE STRUCTURE      ---   -----------------------------------------
         RECORD                     |D|4|

FORCE    FISCAL YEAR          N02   |_|_|

FORACT   ACTIVE ARMY FORCES   N04   |_|_|_|_|

FORRES   ARMY RESERVE FORCES  N04   |_|_|_|_|

FORNG    ARMY NATL GUARD      N04   |_|_|_|_|

FORCER   FORCE STRUCTURE      ---   -----------------------------------------
         RECORD                     |D|4|

FORCE    FISCAL YEAR          N02   |_|_|

FORACT   ACTIVE ARMY FORCES   N04   |_|_|_|_|

FORRES   ARMY RESERVE FORCES  N04   |_|_|_|_|

FORNG    ARMY NATL GUARD      N04   |_|_|_|_|
```

```
FORCER   FORCE STRUCTURE       ---   ----------------------------------------
         RECORD                      |D|4|
FORCE    FISCAL YEAR           N02   |_|_|
FORACT   ACTIVE ARMY FORCES    N04   |_|_|_|_|
FORRES   ARMY RESERVE FORCES   N04   |_|_|_|_|
FORNG    ARMY NATL GUARD       N04   |_|_|_|_|
FORCER   FORCE STRUCTURE       ---   ----------------------------------------
         RECORD                      |D|4|
FORCE    FISCAL YEAR           N02   |_|_|
FORACT   ACTIVE ARMY FORCES    N04   |_|_|_|_|
FORRES   ARMY RESERVE FORCES   N04   |_|_|_|_|
FORNG    ARMY NATL GUARD       N04   |_|_|_|_|
FORCER   FORCE STRUCTURE       ---   ----------------------------------------
         RECORD                      |D|4|
FORCE    FISCAL YEAR           N02   |_|_|
FORACT   ACTIVE ARMY FORCES    N04   |_|_|_|_|
FORRES   ARMY RESERVE FORCES   N04   |_|_|_|_|
FORNG    ARMY NATL GUARD       N04   |_|_|_|_|
FORCER   FORCE STRUCTURE       ---   ----------------------------------------
         RECORD                      |D|4|
FORCE    FISCAL YEAR           N02   |_|_|
FORACT   ACTIVE ARMY FORCES    N04   |_|_|_|_|
FORRES   ARMY RESERVE FORCES   N04   |_|_|_|_|
FORNG    ARMY NATL GUARD       N04   |_|_|_|_|
FORCER   FORCE STRUCTURE       ---   ----------------------------------------
         RECORD                      |D|4|
FORCE    FISCAL YEAR           N02   |_|_|
FORACT   ACTIVE ARMY FORCES    N04   |_|_|_|_|
FORRES   ARMY RESERVE FORCES   N04   |_|_|_|_|
FORNG    ARMY NATL GUARD       N04   |_|_|_|_|
```

```
VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|

VSTATR   AVIONICS STATUS      ***   ****************************************
         RECORD                     |D|5|

VSTAT    AIRCRAFT T/M/S       C20   C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ FUNCTION CODE           C04 |_|_|_|_|
         AVIONICS STATUS            C04 |_|_|_|_|
```

*** LOAD SEGMENT E ***			*** INPUT CODING FORMS ***
*******	**********	***	**********
	LOAD CONFIGURATION		
	(1) RQTR (2) RQTTR		
*******	**********	***	**********
RQTR	REQUIREMENT RECORD	***	**********
			E 1
RQTN	REQUIREMENT NUMBER	C16	
RQTTR	REQUIREMENT TITLE RECORD	***	**********
			E 2
RQTT	REQUIREMENT TITLE	C60	
RQTTR	REQUIREMENT TITLE RECORD	***	**********
			E 2
RQTT	REQUIREMENT TITLE	C60	

*** LOAD SEGMENT F ***

*** INPUT CODING FORMS ***

LOAD CONFIGURATION

(1) ACMDR
(2) AMPOCR
(10) VBR
(10) VIR

```
        MODR        ACP
         |           |
      (MDAM)      (ACAM)
         |           |
         ---ACMDR---
```

MDAM SET - The MODIFICATION program applies to these AIRCRAFT.

ACAM SET - These MODIFICATION programs will install, change, or remove avionics from this AIRCRAFT.

ACMDR	AIRCRAFT/MOD RECORD	---	|F|1|
ACMOD	AIRCRAFT T/M/S	C20	C12 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|_|
AMSTAT	MODIFICATION STATUS	C04	|_|_|_|_|
MODSUB	MOD SUBTITLE	C20	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
VFT	FUNDING TYPE	C04	|_|_|_|_|
AMPOCR	MOD POINT OF CONTACT RECORD	---	|F|2|
MODPOC	MOD POC	C14	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
MOCLOC	POC LOCATION	C26	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
AMPOCR	MOD POINT OF CONTACT RECORD	---	|F|2|
MODPOC	MOD POC	C14	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
MOCLOC	POC LOCATION	C26	|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

```
VBR     AVIONICS BUDGET     ---    ----------------------------------------
        RECORD                     |F|3|
VB      FISCAL YEAR         NO2    |_|_|
VBE     SCHEDULE EST IND    NO1    |_|
VBB     MOD BUDGET          NO5    |_|_|_|_._|_|
VBR     AVIONICS BUDGET     ---    ----------------------------------------
        RECORD                     |F|3|
VB      FISCAL YEAR         NO2    |_|_|
VBE     SCHEDULE EST IND    NO1    |_|
VBB     MOD BUDGET          NO5    |_|_|_|_._|_|
VBR     AVIONICS BUDGET     ---    ----------------------------------------
        RECORD                     |F|3|
VB      FISCAL YEAR         NO2    |_|_|
VBE     SCHEDULE EST IND    NO1    |_|
VBB     MOD BUDGET          NO5    |_|_|_|_._|_|
VBR     AVIONICS BUDGET     ---    ----------------------------------------
        RECORD                     |F|3|
VB      FISCAL YEAR         NO2    |_|_|
VBE     SCHEDULE EST IND    NO1    |_|
VBB     MOD BUDGET          NO5    |_|_|_|_._|_|
VBR     AVIONICS BUDGET     ---    ----------------------------------------
        RECORD                     |F|3|
VB      FISCAL YEAR         NO2    |_|_|
VBE     SCHEDULE EST IND    NO1    |_|
VBB     MOD BUDGET          NO5    |_|_|_|_._|_|
```

```
VBR   AVIONICS BUDGET     ---   ----------------------------------------
      RECORD                    |F|3|

VB    FISCAL YEAR         N02   |_|_|

VBE   SCHEDULE EST IND    N01   |_|

VBB   MOD BUDGET          N05   |_|_|_|.|_|

VBR   AVIONICS BUDGET     ---   ----------------------------------------
      RECORD                    |F|3|

VB    FISCAL YEAR         N02   |_|_|

VBE   SCHEDULE EST IND    N01   |_|

VBB   MOD BUDGET          N05   |_|_|_|.|_|

VBR   AVIONICS BUDGET     ---   ----------------------------------------
      RECORD                    |F|3|

VB    FISCAL YEAR         N02   |_|_|

VBE   SCHEDULE EST IND    N01   |_|

VBB   MOD BUDGET          N05   |_|_|_|.|_|

VBR   AVIONICS BUDGET     ---   ----------------------------------------
      RECORD                    |F|3|

VB    FISCAL YEAR         N02   |_|_|

VBE   SCHEDULE EST IND    N01   |_|

VBB   MOD BUDGET          N05   |_|_|_|.|_|

VBR   AVIONICS BUDGET     ---   ----------------------------------------
      RECORD                    |F|3

VB    FISCAL YEAR         N02   |_|_|

VBE   SCHEDULE EST IND    N01   |_|

VBB   MOD BUDGET          N05   |_|_|_|.|_|
```

VIR	AVIONICS INSTALLATION RECORD	***	** |F|4|
VI	FISCAL YEAR	N02	|_|_|
VIQ	INSTALL QUANTITY	N04	|_|_|_|_|
VIE	SCHEDULE EST IND	N01	|_|
VIR	AVIONICS INSTALLATION RECORD	***	** |F|4|
VI	FISCAL YEAR	N02	|_|_|
VIQ	INSTALL QUANTITY	N04	|_|_|_|_|
VIE	SCHEDULE EST IND	N01	|_|
VIR	AVIONICS INSTALLATION RECORD	***	** |F|4|
VI	FISCAL YEAR	N02	|_|_|
VIQ	INSTALL QUANTITY	N04	|_|_|_|_|
VIE	SCHEDULE EST IND	N01	|_|
VIR	AVIONICS INSTALLATION RECORD	***	** |F|4|
VI	FISCAL YEAR	N02	|_|_|
VIQ	INSTALL QUANTITY	N04	|_|_|_|_|
VIE	SCHEDULE EST IND	N01	|_|
VIR	AVIONICS INSTALLATION RECORD	***	** |F|4|
VI	FISCAL YEAR	N02	|_|_|
VIQ	INSTALL QUANTITY	N04	|_|_|_|_|
VIE	SCHEDULE EST IND	N01	|_|

```
VIR    AVIONICS INSTALLA-   ***   ****************************************
       TION RECORD                |F|4|

VI     FISCAL YEAR          N02   |_|_|

VIQ    INSTALL QUANTITY     N04   |_|_|_|_|

VIE    SCHEDULE EST IND     N01   |_|

VIR    AVIONICS INSTALLA-   ***   ****************************************
       TION RECORD                |F|4|

VI     FISCAL YEAR          N02   |_|_|

VIQ    INSTALL QUANTITY     N04   |_|_|_|_|

VIE    SCHEDULE EST IND     N01   |_|

VIR    AVIONICS INSTALLA-   ***   ****************************************
       TION RECORD                |F|4|

VI     FISCAL YEAR          N02   |_|_|

VIQ    INSTALL QUANTITY     N04   |_|_|_|_|

VIE    SCHEDULE EST IND     N01   |_|

VIR    AVIONICS INSTALLA-   ***   ****************************************
       TION RECORD                |F|4|

VI     FISCAL YEAR          N02   |_|_|

VIQ    INSTALL QUANTITY     N04   |_|_|_|_|

VIE    SCHEDULE EST IND     N01   |_|

VIR    AVIONICS INSTALLA-   ***   ****************************************
       TION RECORD                |F|4|

VI     FISCAL YEAR          N02   |_|_|

VIQ    INSTALL QUANTITY     N04   |_|_|_|_|

VIE    SCHEDULE EST IND     N01   |_|
```

*** LOAD SEGMENT G ***

*** INPUT CODING FORMS ***

LOAD CONFIGURATION

```
(1) ACEQR
   (2) AENOTR
   (1) WUCR
      (1)RELR
```

```
EQR          VSTATR
 |             |
 |             |
(EQAE)       (VSAE)
 |             |
 ----ACEQR----
```

EQAE SET - This type of EQUIPMENT will be installed on these AIRCRAFT.

VSAE SET - The AIRCRAFT and EQUIPMENT specified in the member has the equipment function and avionics status (and the same aircraft) indicated in the owner.

|C|1|

VSTAT	VSTATR CALC KEY		
	AIRCRAFT T/M/S	C20	C12
	EQ FUNCTION CODE		C04
	AVIONICS STATUS		C04

ACEQR	AIRCRAFT/EQUIPMENT RECORD	***	

|C|2|

ACEQ	AIRCRAFT T/M/S	C24	C12
	EQ NOMENCLATURE		C12
VQ	QUANTITY PER AIRCRAFT	N02	
PREAC	CURRENT # AIRCRAFT EQUIPPED	N04	

AENOTR	AC/EQ FOOTNOTE RECORD	---	|G|3|
AENOTE	AC/EQ FOOTNOTE	C100	
AENOTR	AC/EQ FOOTNOTE RECORD	---	|G|3|
AENOTE	AC/EQ FOOTNOTE	C100	
WUCR	WORK UNIT CODE RECORD	---	|G|4|
WUC	WORK UNIT CODE	C06	
NSN	NATIONAL STOCK #	C16	
WUCDES	WUC DESCRIPTION	C20	
WUCQPA	QTY PER AIRCRAFT	N04	
WEIGHT	WEIGHT	N06	
RELR	RELIABILITY RECORD	---	|G|5|
RDATE	DATE OF REPORT	N06	
REPINT	REPORTING INTERVAL	N02	
RELINV	INVENTORY	N06	
RPTIME	TOTAL OPERATING TIME	N08	
RENG	NUMBER OF FAILURES	N05	

```
*** LOAD SEGMENT H ***                    *** INPUT CODING FORMS ***

*******   *****************   ***   *****************************************

          LOAD CONFIGURATION              FUTRE SET - The link record indicates the
                                          EQUIPMENT which will replace the one
                ACEQR                     indicated in the owner record.
                |    |
          (FUTRE)    (REPLC)              REPLC SET - This set is used in conjunction
                |    |                    with the FUTRE set to indicate EQUIPMENT
                EQLR                      REPLACEMENTS.

*******   *****************   ***   *****************************************

EQLR      EQ REPLACEMENT LINK     ***     -----------------------------------------
          RECORD                          |H|1|

EQREPL    ALIAS FOR ACEQ  (SET FUTRE)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

FUTREQ    ALIAS FOR ACEQ  (SET REPLC)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

EQLR      EQ REPLACEMENT LINK     ***     -----------------------------------------
          RECORD                          |H|1|

EQREPL    ALIAS FOR ACEQ  (SET FUTRE)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

FUTREQ    ALIAS FOR ACEQ  (SET REPLC)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

EQLR      EQ REPLACEMENT LINK     ***     -----------------------------------------
          RECORD                          |H|1|

EQREPL    ALIAS FOR ACEQ  (SET FUTRE)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

FUTREQ    ALIAS FOR ACEQ  (SET REPLC)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

EQLR      EQ REPLACEMENT LINK     ***     -----------------------------------------
          RECORD                          |H|1|

EQREPL    ALIAS FOR ACEQ  (SET FUTRE)
          AIRCRAFT T/M/S          C24     C12 |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                 C12 |_|_|_|_|_|_|_|_|_|_|_|_|

FUTREQ    ALIAS FOR ACEQ  (SET REPLC)
          AIRCRAFT T/M/S          C24         |_|_|_|_|_|_|_|_|_|_|_|_|
          EQ NOMENCLATURE                     |_|_|_|_|_|_|_|_|_|_|_|_|
```

*** LOAD SEGMENT I ***   *** INPUT CODING FORMS ***

```
*******  ******************  ***  ****************************************

         LOAD CONFIGURATION         AMAV SET - These EQUIPMENT types will be
                                    installed on this AIRCRAFT in this
         ACMDR        ACEQR         MODIFICATION program.
           |            |
         (AMAV)       (AEAV)        AEAV SET - The MODIFICATION program indi-
           |            |           cated by this link record is the one
           -----MAER-----           which will install this EQUIPMENT on this
                                    AIRCRAFT.

*******  ******************  ***  ****************************************

MAER     MOD/AC/EQ LINK      ***  ****************************************
         RECORD                   |I|1|

ACMOD    AIRCRAFT T/M/S      C20  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         PIP NUMBER               C08 |_|_|_|_|_|_|_|_|

ACEQ     AIRCRAFT T/M/S      C24  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ NOMENCLATURE          C12 |_|_|_|_|_|_|_|_|_|_|_|_|

TYPCHG   TYPE OF CHANGE      C02  |_|_|

MAER     MOD/AC/EQ LINK      ***  ****************************************
         RECORD                   |I|1|

ACMOD    AIRCRAFT T/M/S      C20  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         PIP NUMBER               C08 |_|_|_|_|_|_|_|_|

ACEQ     AIRCRAFT T/M/S      C24  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ NOMENCLATURE          C12 |_|_|_|_|_|_|_|_|_|_|_|_|

TYPCHG   TYPE OF CHANGE      C02  |_|_|

MAER     MOD/AC/EQ LINK      ***  ****************************************
         RECORD                   |I|1|

ACMOD    AIRCRAFT T/M/S      C20  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         PIP NUMBER               C08 |_|_|_|_|_|_|_|_|

ACEQ     AIRCRAFT T/M/S      C24  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ NOMENCLATURE          C12 |_|_|_|_|_|_|_|_|_|_|_|_|

TYPCHG   TYPE OF CHANGE      C02  |_|_|

MAER     MOD/AC/EQ LINK      ***  ****************************************
         RECORD                   |I|1|

ACMOD    AIRCRAFT T/M/S      C20  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         PIP NUMBER               C08 |_|_|_|_|_|_|_|_|

ACEQ     AIRCRAFT T/M/S      C24  C12 |_|_|_|_|_|_|_|_|_|_|_|_|
         EQ NOMENCLATURE          C12 |_|_|_|_|_|_|_|_|_|_|_|_|

TYPCHG   TYPE OF CHANGE      C02  |_|_|
```

*** LOAD SEGMENT 3 *** | *** INPUT CODING FORMS ***

```
LOAD CONFIGURATION

ACR        RQTR
 |           |
 |           |
(ACRQT)  (RQTAC)
 |           |
  --ACRQTR--
```

ACRQT SET - This AIRCRAFT is affected by the REQUIREMENTS DOCUMENTS indicated by these link records.

RQTAC SET - This REQUIREMENTS DOCUMENT affects the AIRCRAFT designations indicated by these links.

ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
ACRQTR	AC/REQUIREMENT RECORD	***	|J|1|
ACRQTL	AIRCRAFT T/M/S	C28	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

*** LOAD SEGMENT K *** *** INPUT CODING FORMS ***

*******	******************	***	***

```
LOAD CONFIGURATION

ACMDR     RQTR
  |         |
  |         |
(AMRQT)  (RQTAM)
  :         :
  --AMRQTR--
```

AMRQT SET - These REQUIREMENTS DOCUMENTS are needed for this MODIFICATION program on this AIRCRAFT.

RQTAM SET - This REQUIREMENTS DOCUMENT helps set the requirements for the MODs indicated by these links.

*******	******************	***	***
AMRQTR	AC/MOD/REQUIREMENT RECORD	***	*************************************** |K|1|
AMRQTL	AIRCRAFT T/M/S	C36	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
AMRQTR	AC/MOD/REQUIREMENT RECORD	***	*************************************** |K|1|
AMRQTL	AIRCRAFT T/M/S	C36	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
AMRQTR	AC/MOD/REQUIREMENT RECORD	***	*************************************** |K|1|
AMRQTL	AIRCRAFT T/M/S	C36	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
AMRQTR	AC/MOD/REQUIREMENT RECORD	***	*************************************** |K|1|
AMRQTL	AIRCRAFT T/M/S	C36	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
AMRQTR	AC/MOD/REQUIREMENT RECORD	***	*************************************** |K|1|
AMRQTL	AIRCRAFT T/M/S	C36	C12 |_|_|_|_|_|_|_|_|_|_|_|_|
	PIP NUMBER		C08 |_|_|_|_|_|_|_|_|
	REQUIREMENT NUMBER		C16 |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

APPENDIX D

APB-A OUTPUT FORMATS

Figure D-1 displays the basic output format of the main APB-A report. This format was designed for the manual version of the APB-A and may be altered slightly to accommodate horizontal space limitations (132 characters) in a computer printout. Because force structure information is classified confidential, it will be published in a separate document; however, it will appear in the same format as shown.

Figures D-2 through D-5 illustrate the formats of the APB-A appendixes. These are the adapted versions of the AF APB appendixes with some additional fields of data.

On all figures, data items, record names, and their data base areas appear in the fields of output to signify the type and format of the data that are produced in those spaces. The formats for these items and records are found in Appendix A of this report. If an item influences the generation of data in a field, e.g., avionics status (VSTAT in VSTATR) in Programmed and Planned Avionics Changes by Fiscal Year (Figure D-1), it is also shown in that field.

AC in ACR in ACSEG

TOTAL AIRCRAFT IN FY 1981: FORCE, FORACT + FORRES + FORNG in FORCER in ACSEG

Planning Information Only																
Existing Avionics							Programmed and Planned Avionics Changes by Fiscal Year									
Group	Equipment Type	Nomenclature	Terminal Logistics Date	Total Aircraft Equipped	Number per Aircraft	IN	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992+
LF	EQDES	EQ	EQTLD	PREAC	VQ				V1, V1E			V5TAT	EQ			
in	in	in	in	in	in				in			in	in			
EFR	EQR	EQR	EQR	ACEQR	ACEQR				V1R			V5TATR	EQR			
in	in	in	in	in	in				in			in	in			
EQSEG	EQSEG	EQSEG	EQSEG	AVSEG	AVSEG				AVSEG			AVSEG	EQSEG			

FIGURE D-1

OUTPUT FORMAT FOR AIRCRAFT AVIONICS CONFIGURATION

AC in ACP in ACSEG

TOTAL AIRCRAFT IN FY 1983 FORCE, FORACT + FORRES + FORMG in FORCER in ACSEG

Information Planning Only

Ongoing Avionics

PIP Number	PIP Title	Nomenclature	Peace Years	Number per Aircraft	FN
MOD	MODSUB	EQ	PREAC	VQ	
in	in	in	in	in	
MODR	ACMDR	EQR	ACEQR	ACEQR	
in	in	in	in	in	
MODEG	AVSEG	EQSEG	AVSEG	AVSEG	

Reprogrammed and Planned Avionics Changes by Fiscal Year

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992+
	VI, VIQ, VIE					VSTAT			
	in					in			
	VIR					VSTATR			
	in					in			
	AVSEG					AVSEG			

Other Planned Avionics

PIP Number	PIP Title	Nomenclature	Number per Aircraft	FN
MOD	MODSUB	EQ	VQ	
in	in	in	in	
MODR	ACMDR	EQR	ACEQR	
in	in	in	in	
MODEG	AVSEG	EQSEG	AVSEG	

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
	VI, VIQ, VIE					VSTAT			
	in					in			
	VIR					VSTATR			
	in					in			
	AVSEG					AVSEG			

FIGURE D-1 (continued)

AC in ACR in ACSEG

TOTAL AIRCRAFT IN FY 1981: FORCE, FORACT + FORRES + FORNG in FORCER in ACSEG

Planning Information Only												
Modification Planning Funds			(Fiscal Year)									
PIP Number	PIP Title	Status	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992+
MOD	MODSUB	VSTAT	VB, VBP									
in	in	in	in									
MODR	ACMDR	VSTATF	VBP									
in	in	in	in									
MODEG	AVSEG	AVSEG	AVSEG									

Force Structure	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992+
Active	FORCE, FORACT									
National Guard	FORCE, FORNG									
Reserve	FORCE, FORRES									
Total	FORCE, FORACT + FORNG + FORRES									

in FORCER
in ACSEG

FIGURE D-1 (continued)

AC in ACR in ACSEG

TOTAL AIRCRAFT IN FY 1983. FORCE, FORACT + FORRES + FORNG in FORCEN in ACSEG

Planning Information Only		
Requirements Documents		
Number	Title	
RQTN in RQTR in RQSEG	RQTR in RQTER in RQSEG	
Facilities		
FN	Name	
	FQNOTE in FQNOTR in FQSEG	ACNOTE in ACNOTR in ACSEG	ADNOTE in ADNOTR in AVSEG

FIGURE D-1 (continued)

FUNCTION	SUBFUNCTION	DESCRIPTION	TLD	NOMENCLATURE MMM YY
EPT	ESPT	EQUIPMENT	EQPTLD	EQ
In	In	In	In	In
EPR	ESPR	EQP	EQP	EQP
In	In	In	In	In
EQSEG	EQSEG	EQSEG	EQSEG	EQSEG

FIGURE D-2

OUTPUT FORMAT FOR AVIONICS EQUIPMENT
NOMENCLATURES BY FUNCTION

NOMENCLATURE	DESCRIPTION	AIRCRAFT	FUNC	SUBFUN	STATUS	EQUIPMENT POC	LOCATION	PHONE	MMM YY
EQ	EQDES	VSTAT	ESF	VSTAT		EQMAN	EQPOC	EPHONE	
in	in	in	in	in		in	in	in	
EQR	EQR	VSTATR	ESFR	VSTATR		EQR	EQR	EQR	
in	in	in	in	in		in	in	in	
EQSEG	EQSEG	AVSEG	EQSEG	AVSEG		EQSEG	EQSEG	EQSEG	

FIGURE D-3

OUTPUT FORMAT FOR AVIONICS EQUIPMENT
NOMENCLATURES SORTED ALPHABETICALLY

FUNC	SUBFUNCTION	DESCRIPTION	NOMENCLATURE	AIRCRAFT	STATUS	AC TOTAL	EQ TOTAL	SUBFUNCTION TOTAL
FF	ESFF	EQDES	EQ	VSTAT		15	17	110
in	in	in	in	in		sec	sec	sec
ETR	ESFR	EQR	EQR	VSTATR		(1)	(2)	(3)
in	in	in	in	in				
EQSEG	EQSEG	EQSEG	EQSEG	AVSEG				

(1) AC Total = VQ * FREAC, for each aircraft
(2) EQ Total = Σ AC Totals, for each equipment
(3) Subfunction Total = Σ EQ Totals, for each subfunction

FIGURE D-4

OUTPUT FORMAT FOR AVIONICS EQUIPMENT
AIRCRAFT INSTALLATIONS BY FUNCTION

• NUMBER	PIP TITLE/TYPE		• EQUIPMENT FINAL NOMENCLATURE INS •			AIRCRAFT	REQUIREMENT	• SCHEDULE • YR ORIGN •	FOCAL OF CONTACT	MMM YY
MDD	MODSUB	TYPCWC	EF	EQ	PREAC	AC	RQTR	V1, V10	MONPOC, MODLOC	
in	in	in	in	in	in	in	in	in	in	
MODR	ACMDR	MAER	EFR	EQR	ACEQR	ACR	RQTR	V1R	AMPOCR	
in	in	in	in	in	in	in	in	in	in	
MDSEG	AVSEG	AVSEG	EQSEG	EQSEG	AVSEG	ACSFG	RQSEG	AVSEG	AVSEG	

**** AVSCOM/AVRADA APPENDIX D PAGE D-888

FIGURE D-5

OUTPUT FORMAT FOR AVIONICS MODIFICATION
PROGRAMS SORTED NUMERICALLY

APPENDIX E

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